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The October number of THE OPHTHALMIC RECORD will contain, amongst others, an original article by J. Wilkinson Jervey, M. D., Chorioretinitis Strata; one by Alvin A. Hubbell, M. D., case of foreign body lodged within the eyeball and removed eighteen years after injury; one by C. D. Conkey, hemorrhage into the orbit of a new born child; one by R. W. Place, M. D., a method of measuring the amount of ciliary spasm by means of the shadow test. There will also appear editorials, abstracts, society reports and personals and items of interest to the profession.

THE RECORD particularly desires short practical papers on any subject connected with Ophthalmology. These will be published at as early a date as possible. It is understood that, unless otherwise arranged, original articles, when accepted, are contributed to the RECORD exclusively. Illustrative cuts will be made at the expense of the journal, and proofs for correction will be sent to authors when desired. Reprints with covers will be furnished at cost. The RECORD will be issued monthly, and each number will contain about 54 pages of reading matter.

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TABLE OF CONTENTS.

I. ORIGINAL ARTICLES.

Page.

I. A case of Commotio Retinae caused by Contrecoup, with Persistent Blindness, Resulting in Complete Recovery, *by* **Henry A. Beaudoux, M. D.,** *Fargo, N. D.* 449

II. Tests for Heterophoria, *by* **G. C. Savage, M. D.,** *Nashville, Tenn.* 453

III. Is the Theory of the Vicarious Fovea Erroneous? *by* **A. Edward Davis, A. M., M. D.,** *New York, N. Y.* 461

IV. On the Employment of Agar-Agar in the Formation of a Stump after Enucleation or Evisceration, *by* **Geo. F. Suker, M. D.,** *Chicago* 466

V. High Degree of Conical Cornea with Hyperopic Refraction, *by* **H. V. Würdemann, M. D.,** *Milwaukee, Wis.* 469

VI. Injury to the Eye from the Explosion of a Water Glass, *by* **S. Mitchell, M. D.,** *Hornellsville, N. Y.* 470

VII. Further Remarks Upon the Surgical Treatment of High Myopia, with the Report of an Additional Operation, *by* **Charles W. Kollock, M. D.,** *Charleston, S. C.* 473

VIII. A Box for Mounting Eye Jars, *by* **Brown Pusey, M. D.,** *Chicago.* Illustrated 475

II. EDITORIAL.

I. Cataract in India 477

III. REPORTS OF SOCIETIES.

I. The Society of Ophthalmologists and Otologists of Washington, D. C 479

II. Ophthalmological Society of the United Kingdom 481

III. French Congress of Ophthalmology 483

IV. Wills' Hospital Ophthalmic Society 488

IV. CORRESPONDENCE.

I. The Endothelium of the Iris 490

V. REVIEWS.

I. The Value of Iridectomy in Glaucoma 492

VI. NEWS ITEMS.

I. Personals and Items of Interest 498

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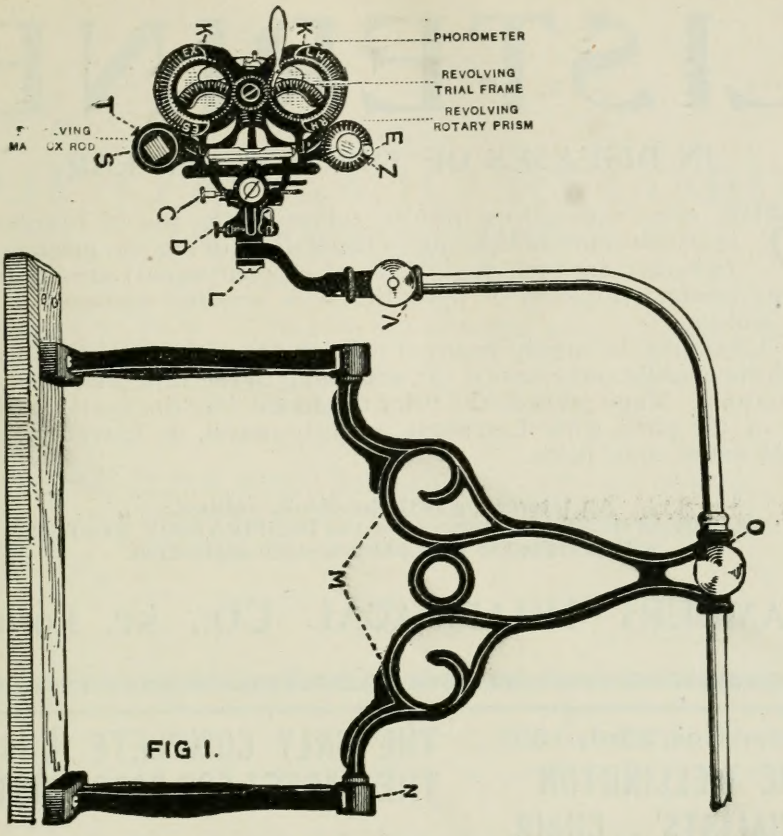

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THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME X. No. 9. CHICAGO, SEPTEMBER, 1901. NEW SERIES.

ORIGINAL ARTICLES.

A CASE OF COMMOTIO RETINAE CAUSED BY CONTRE-COUP, WITH PERSISTENT BLINDNESS, RESULTING IN COMPLETE RECOVERY.

BY HENRY A. BEAUDOUX, M. D.
FARGO, N. D.

Cases of commotio retinæ are by no means of common occurrence, surely those produced by contrecoup, and for this reason I feel it is a duty as well as a pleasure to report a case which in several respects differs form the few that are on record up to the present time.

G. E., aged 19, came to my office December 1, 1899 with a history of having fallen fifteen days before out of a lumber wagon, striking the frozen ground on the right side of his head, and of having been dragged by his team for several rods, and subsequently unconscious for two hours. The evening of the same day he noticed that he could not see with his left eye, and that for several succeeding days the sight was growing worse. Having become alarmed at the persistent condition, he was brought to me for consultation.

The external examination revealed only a healing wound extending from the outer canthus of the right eye to a point half an inch horizontally outward. The cicatrix was producing a slight ectropium of the outer third of the lower lid, which was overcome later by surgical treatment. The vision of the right eye was normal, while that of the left eye was nil. The perimetric examination of the field showed a large irregular central scotoma, leaving but a small peripheral part of the field for indistinct vision. The ophthalmoscope showed a great number of disseminated patches of grayish opacities, through which the vessels coursed to the periphery; some of these were small, others quite large and continuous. Sub-

choroidal hemorrhages could be seen here and there, surrounded by a grayish discoloration which appeared as if located in the deeper layer of the retina, while the milky-white discoloration, found in uncomplicated commotio retinæ, was strewn about these and seemingly upon its surface. The macula could be plainly seen, being somewhat congested and the whole circulatory system was more or less dilated. This being probably due to a temporary paralysis of the blood vessels of the retinæ and choroid, which R. Denig believes usually takes place with this condition. The optic papilla showed little or no change save those connected with the circulatory portion of it. The vitreous, save for a few detached cells floating therein, was clear as well as all other media. The pupil was dilated, but I attributed this to a mydriatic instilled by the family physician, as the patient reported the instillation of some medicine; for in these cases the pupil is contracted.

Before going any further with the progress of the case, I wish to mention something of what is known of the pathology of commotio retinæ, and more particularly of the experiments made by R. Denig, who alone seems to have given us sufficient data upon the subject to explain satisfactorily some of the phases that take place during the course of the pathologic variations as seen in the eye and to account for temporary or persistent blindness, whether these are to be seen or not in the fundus.

After a number of repeated experiments carefully analysed and studied, Denig writes:

"Corresponding to the ophthalmoscopic picture there are many small elevations in the nerve-fiber layer of the retina, strung like pearls, with alternating depressions. The thickness of the elevations is about one-tenth to one-third the diameter of the retina, the length being from three to five times the thickness. The elevations are covered by the membrana limitans, and the latter is torn in places. The ganglion cells are here displaced somewhat farther back.

"The nerve-fiber layer between the elevations is slightly thickened, which is also noticed at the transition from the elevations into normal retina.

"With a high magnifying power the elevations of the retina have the appearance of mushrooms, with irregularly formed openings of various sizes, strongly reflecting the light with a yellowish opalescence. The framework took the stain, but the cavities did not.

"The other layers of the retina are normal, containing between the rods and cones some spheroidal structures as exudations from the

vessels of the choroid; the latter, immediately (for about thirty seconds) after the blow, become paralyzed and dilated with simultaneous hyperæmia of the optic disc; this condition could be very well observed in albino rabbits.

"Subchoroidal hemorrhages are caused only by very severe blows. I have still to add that I found the elevations and the exudation in the retina between the rods and cones, even when the discoloration of the retina was not noticed with the ophthalmoscope. If one may draw conclusions from the rabbit's eye to the human eye, it can be easily understood why, in some instances of commotio retinæ, there exists, despite a normal fundus, a diminution of peripheral and central vision in the form of a scotoma or impairment of sight.

"As to the explanation of the changes in the retina, I believe that the blow causes the vitreous to impinge upon the retina like a wave, rebounding with the same violence toward the starting point; the same changes are, therefore, mostly observed at that latter spot. Through the violence of the wave of the vitreous, the stigmata of Muller's fibres are distended, in some places the limitans is torn and vitreous humor is forced into the nerve-fiber layer of the retina. The latter being broken up gives rise to the above microscopic picture, and produces, if large enough, the ophthalmoscopic picture of the milky discoloration of the retina.

"The vitreous humor, pressed inward, becomes gradually absorbed again, the broken-up nerve fibers unite again, and all structures return to the normal.

"The fact that no harm to the nerve fibers was done, may be explained by the well-known resistance of the axial cylinders, for instance, in multiple sclerosis."

The patient was placed on a light diet, an active cathartic administered and atropia instilled freely, with order to wear dark glasses all the time. Gradually the patches of discoloration in the retina, choroid hemorrhages, disappeared one by one, and the fundus after about four weeks had resumed a normal appearance. The vision, however, did not keep pace with the gradual improvement of the pathologic conditions of the fundus and it was very slightly improved, if any, when these had entirely disappeared. For some months, having taken the patient into my service as a driver both to assist him financially and to insure his continuous attendance at the office. I watched him patiently, administered twice a week one-eighth to one-fourth of pilocarpine, with repeated cuppings on the temple, before retiring, having in mind the pathology of Berlin, i. e., that we were

dealing with an œdema induced by hemorrhages of the choroid, and I had certainly reasons to give consideration to this theory in this case having both conditions to deal with, i. e., patches of discoloration and hemorrhages as well. This, however, brought on no change. I then used ten drops of the sat. sol. of the iodide of potash three times daily, increasing it to one hundred and twenty-five gtt., and also began galvanism, the pole applied to the temple and the pole over the closed lids. From that time the patient began to improve very gradually, and while I could not detect any change in the fundus after the second month the improvement kept on, till he went home with a vision of $\frac{2}{20}$ in both eyes and with normal fields, having been under treatment nine months almost to a day.

As far as I have been able to learn from my research through the literature, cases of commotio retinæ caused by contrecoup are exceedingly rare, and this case shows singular departures from the usual expectations, for according to the consensus of opinion the whole discoloration disappears readily in a few days; in this case it lasted several weeks. The loss of vision, which is generally recovered quite quickly, or remains partially or totally impaired, remained in this case for several months, and then normal sight was gradually regained at the end of eight months.

No symptoms or appearance in the eye that would suggest any disturbance along the optic tract or in any part of the eye or nervous system, indicating that we had not for consideration a case of retinal concussion, pure and simple, with small choroidal hemorrhages could be found.

Since writing this paper the patient made a visit to my office, December 2, just one year and a day since I first examined him and I find him in the same condition as he was when discharged, September last. Before sending this paper for publication I submitted it to Dr. R. Denig, who reports it quite unique and interesting from the point of view of the prolonged impairment of the vision.

Our curiosity as physicians is always aroused when we read of the bodily infirmities of illustrious men; this explanation is sufficient for inserting this item for the purpose of getting information on these points.—*Annals of Ophthalmology.*

It is an interesting fact that two of our historians, of international fame, William H. Prescott and Fr. Parkman, both suffered so severely with their eyesight that they were practically blind.

TESTS FOR HETEROPHORIA

BY G. C. SAVAGE, M. D.
PROF. OPHTHALMOLOGY, VANDERBILT UNIVERSITY.
NASHVILLE, TENN.

There are some interesting tests for heterophoria that can be made, in a rough way, independent of the phorometer. One is the cover test. If there is an error of any magnitude, it will manifest itself on covering one eye while the patient is looking with both eyes at a test object twenty feet distant. The covered eye will immediately place itself in a state of equilibrium. When the cover is removed it will return to the position of harmony with the fellow eye. This readjustment can be easily seen, in many cases, by the observer. The direction in which the eye moves when uncovered, indicates the kind but not the quantity, of heterophoria. A patient of keen observation will be made conscious of the disturbance. This is better done by covering and uncovering the eyes alternately. In high degrees of heterophoria a plain red glass placed before one eye will suspend, to some extent, the effort at fusion, and diplopia will result. A candle should now be the test object. The position of the red blaze, the patient the while looking at the real candle, will indicate the kind of error. Only the higher errors respond to the red glass test. The Maddox rod test, except for cyclophoria, is objectionable for the reason that the streak of light invades the field of binocular fusion, which leads to an attempt to suppress the error.

The tests by means of the phorometer, preferably the monocular instrument, is the only one to be relied upon. The objection to the binocular instruments, such as the Stevens and the Wilson, is that the images in both eyes are disturbed, whereas one eye should always be in the primary position in these tests, from the beginning to the end; that is, in the imbalance tests and in the duction tests. With the monocular instrument the kind of error is quickly determined and the quantity is easily measured. In testing the interni and externi, the 6° prism is placed, base up, in the cell next to the eye. This will throw the false image above on the retina and entirely outside the field of binocular fusion, so that no attempt can be made at fusion. The false object will be below the true one and will bear that relationship to it determined by the existing imbalance. The handle of the rotary prism must be horizontal, the index at zero, and the instrument perfectly level. The true object must be the one looked at. If the false object is towards the opposite side there is

exophoria. Turning the controlling screw, the index is moved toward the corresponding side until the patient says that the false object is directly under the true. The number at which the index stands marks the quantity of the exophoria for that eye.

If the false object, instead of being on the opposite side, shows itself on the corresponding side, the existing error is esophoria. The controlling screw is now turned so that the index moves towards the opposite side. The revolution is stopped when the patient says that the false object is in a vertical line with the true one. The number at which the index stands shows the quantity of the esophoria for that eye.

The test having been made for distance, it should now be repeated at the reading point. The test object now should be a white card in the center of which is a black dot; and the card should be held directly in front of the eyes. There should be no line drawn vertically through the dot, as advised by Graefe, for the reason that this line would cross the area of binocular fusion, and thus lead to an attempt on the part of the eye to correct its error. The kind of error is determined and its quantity measured, as in the distant test. The result, not always the same as found in the distant test, should be noted.

The lateral error having been thus found and measured, the 6° prism should be removed and the 10° prism, base towards the nose, should be placed in the cell. The handle of the rotary prism should now be placed vertically and the index must be made to stand at zero. It is now of vast importance that the instrument shall be perfectly level, otherwise a vertical error may be shown when none exists. The instrument thus adjusted, any vertical imbalance may be detected and measured. As in the test for lateral errors, the true object must be the one fixed. The false image will be thrown outside the area of binocular fusion, toward the nose, while the false object will appear on that side of the true, corresponding to the eye under test. If the false object is below the horizontal line passing through the true, there is hyperphoria of that eye, the quantity of which is determined by revolving the controlling screw so that the index shall move upward. The number at which the index stands when the patient says the two objects are level, shows the quantity of the error.

If in the test the false object is above the horizontal line passing through the true, there is cataphoria of that eye. The screw is now turned so that the index shall move downward. The number at

which the index stands when the patient says the objects are level, shows the quantity of the cataphoria. The test for vertical imbalance may not be repeated at the near point.

The one eye having been thus tested for imbalance of all the recti, the instrument should now be turned into position before the fellow eye, that the lateral and vertical imbalances it may have, may be found and measured. Usually if there is esophoria of one eye, the other will also show esophoria, the amount in the one about equal to that in the other. Occasionally, however, there will be a difference of 1° or even more. The same may be said of exophoria. When there is hyperphoria of one eye, the other is usually cataphoric, and the one error about equals the other.

A double hyperphoria and a double cataphoria cannot easily be shown in the imbalance test, by the phorometer. The proof test, which is by means of the Maddox double prism, quickly shows either of these errors when they exist. The base line of these prisms (3° or 4°) should be held horizontally before first one eye and then the other, having each eye look at the distant test object, first through the upper prism then through the lower, observing that position which throws the double objects closer together. If they are closer for both eyes when the false object is seen through the upper prism, there is double hyperphoria. If they are closer for both eyes when the false object is seen through the lower prism, then there is double cataphoria.

It can be readily understood that, if there is hyperphoria of one eye and cataphoria of the other, the two objects will be closer together when the false one is seen, by the hyperphoric eye, through the upper prism, and by the cataphoric eye, through the lower prism. Hence the reason for calling this use of the double prism the proof test of hyperphoria and cataphoria.

The next step in the testing is to determine the ability of the obliques to parallel the vertical axes of the eyes with the median plane of the head. This can be done rudely in one of several ways. First, by means of the Maddox double prism, the object looked at being a horizontal line on a card held at the reading distance, preferably a horizontal line on a card held at the reading distance, or a horizontal line on a black-board at 20 feet, preferably both. The base line of the double prism (6°) should be horizontal and so held before one eye as to double the test line. The two lines seen by this eye must be parallel. The third line seen by the

other eye, should be between the other two and parallel with them. A dipping of the true line toward the opposite side would show a plus cyclophoria, while a dipping towards the corresponding side would show a minus cyclophoria. The quantity of the error thus shown cannot be measured.

The same test may be made by means of a single prism of 6° base up or down, before either eye; but even still more easily, it may be made by the revolving prism in position for taking the subducting and superducting power. The rotation, of course, must be carried beyond the possibility of fusion. The false line is seen by the eye before which the single prism is held or the rotary prism has been placed, while the true line is seen by the other eye. The refracting angle of the prism points in the direction of the false line. When this line is seen below by the right eye, and the ends of the two towards the right converge, there is a plus cyclophoria; if they divergo towards the right there is minus cyclophoria. There is no method of measuring the error thus found. In revolving the rotary prism or in turning the single prism so as to make it possible for fusion to take place, it is interesting for the patient to watch the manner of fusing—if there is cyclophoria the two lines will come together at one end first and then quickly fuse throughout.

The Stevens Clinoscope will detect and measure any existing cyclophoria. The best means for detecting cyclophoria and measuring the amount of the error, is the cyclo-phorometer. It is much cheaper than the clinoscope, and better still, it is simpler in construction and much more easily manipulated. The 5° prism, base up, behind one rod gives the two streaks of light; the thumb screw makes it easy to place the one streak directly under the other—ends even. If the axes of the rods are at zero and the two streaks are not parallel, cyclophoria is positively shown; if the lower streak is seen by the left eye and the two streaks converge at the left there is plus cyclophoria, but if they diverge at the left there is minus cyclophoria. The extent of the turning of the rod on the one side or the other, necessary for parelleling the streaks, measures the quantity of the cyclophoria. It is not necessary, with the cyclo-phorometer, to keep in mind that the lower streak is seen by the eye that has the displacing prism before it, for the position of the axis of the rod at the time the streaks are made parallel names the error as well as measures its quantity—when the axis must be moved into the

nasal arc, there is plus cyclophoria; into the temporal arc, there is minus cyclophoria.

The spirit level of the cyclo-phorometer enables one to determine if the cyclophoria is monocular or binocular. When the two streaks of light converge at one end or the other, if the error is binocular, neither of the lines will be horizontal. If the one is horizontal while the other is oblique, the error is monocular. If both lines are inclined in the same direction it shows plus cyclophoria in one eye and minus cyclophoria in the other.

Having followed out the tests already described—the tests for imbalance—one knows the kind of error or errors in the individual case, but remains ignorant of the character of these errors. The duction and version tests alone can reveal the fact that an error is sthenic or asthenic; just as the study of the refractive errors alone reveal whether or not a given heterophoria is pseudo or instrinsic.

The duction test is to determine the power the muscles have for overcoming the displacing of images by means of prisms. To this meaning the word duction, with its several prefixes, should be restricted. The method of determining duction power by means of the monocular phorometer is expeditious, easy and accurate. It can be accomplished by means of the prisms in the refraction case, but not so quickly nor so accurately. Duction is wholly an involuntary act. It is accomplished by the guiding sensation in obedience to the law of corresponding retinal points; but it has its limitations. Abducton is the power of the externus to fuse with the image on the macula of the fellow eye, an image that has been displaced to the nasal side of the macula of its own eye. Less than 6° of such power is subnormal; more than 8° is supernormal. Adduction is the power of an internus to move the macula outward until it shall fall under the image that has been displaced temporally, so that it may be fused with the image on the macula in the fellow eye. It is certainly subnormal if less than 18° to 25°. The adduction stimulus is much greater than any other and is much more variable. Its variableness makes it much less reliable than any other duction; but, nevertheless, it must be known in dealing intelligently with esophoria or exophoria.

Superduction is the power the superior rectus has for fusing an image displaced below the macula, with the image on the macula in the fellow eye. Less than 2° is subnormal; more than 3° is supernormal.

Subduction is the power the inferior rectus has for fusing an

image displaced above its macula, with the image on the macula in the fellow eye. Less than 2° is subnormal; more than 3° is supernormal.

In all duction tests it is better that the image should be slowly moved away from the point occupied by the macula when the eye is in the primary position, towards the boundary line of the field of binocular fusion which should be considered as immovably fixed. So long as this image is within this field there is binocular single vision, for the macula moves with the moving image, as far as possible; but the moment is passes the border line there results diplopia. The index of the rotary prism marks the duction power of the muscle concerned. It should be noted. The area of binocular fusion is larger where the muscles are stronger; smaller where the muscles are weaker. Its size can be changed both by exercise and by operations. If it is too small it may be increased by exercise and by shortening and advancement operations; if too large it can be reduced only by tenotomies which should always be partial.

Cycloduction, which is involuntary, can be taken only by the clinoscope or the cyclo-phorometer. With the former instrument the line as seen by one eye is turned, by means of the proper screw, up to the point of doubling. The index marks the torsioning power of the oblique involved. With the cyclo-phorometer the axis of one rod is moved from zero toward the nose to test the torsioning power of the inferior oblique, and towards the temple for determining the power of the superior oblique. An oblique should have a fusing power of 7° to 10°. The inferior oblique has a little greater fusing power than the superior.

In determining the several ductions, the tests should be monocular.

In any given heterophoric condition the duction test, aided by the version test, determines whether the error is sthenic or asthenic, and, therefore, the kind of operation, if any, that should be done. No muscle should be weakened by a partial tenotomy whose duction power is normal or subnormal; but the imbalance should be cured either by a shortening or advancement of its still weaker antagonist.

No examination of the recti muscles is complete without the taking of the verting power of every one. This can be rudely done by simply watching the eyes while the patient looks as far as possible in the four cardinal directions. The objection to this test is that there is no accuracy in it, and yet it is better than no test. The reason

for introducing the terms adversion, abversion, superversion and subversion is to avoid confusion. The extent of each, considered as normal, is: abversion 50°, adversion 50°, superversion 33°, subversion 50°. Of all instruments for making the version tests the Stevens Tropometer stands first, because of simplicity, accuracy and speed. The only part of the instrument that should be dispensed with is the head rest, and this for two reasons: First, it interferes with the manipulation of the upper lid when the infraversion is being taken, for now the lid must be held up or it will entirely obscure the cornea; second, it obscures too soon the small electric light or other test object, which the patient should fix as superversion is being taken. The mouth piece is necessary in order to insure that the patient's head shall not turn while the verting power of the eye is being taken.

A fairly good substitute for the tropometer is the perimiter, if properly used. There should be some means for preventing the movement of the head, and nothing could do this better than a mouth piece, such as constitutes a part of the tropometer. The eye under test should be in the center of the perimeter curve. As with the tropometer, the rotations should be taken in the four cardinal directions only. With the arms of the perimeter in the horizontal plane, abversion and adversion can be easily taken, and if proper care is observed the result will be practically accurate. The small electric light, shaded toward the observer, should be placed first directly in front of the eye while in the primary position. From this point the light, while being kept in contact with the perimeter arm, should be moved in the temporal arc—the arc for abversion—slowly, the patient fixing the moving light while the operator fixes its image reflected from the center of the cornea, moving his own head harmoniously with the moving light. The patient should speak when he finds himself no longer able to fix the light. At the same moment the observer can see that the image is no longer reflected from the center of the cornea. Thus the patient serves as a check to the operator, while the operator also serves as a check to the patient. When 5° beyond the point of fixation the small light becomes so blurred that the patient can easily detect the change, hence, if the patient is clearly observant, there is small room for error. The operator can not so easily detect an error of 5° as shown by the reflected image. For these reasons the subjective part of the test is more reliable than the objective. The position of the light on the arc when the patient can no longer fix it, and when the reflected image begins to leave the

center of the cornea, indicates the degrees of abversion. With the light moving along the nasal arc, adversion is taken in like manner, and its extent should be noted.

With the arms of the perimeter rotated into the vertical plane, superversion and subversion are taken by moving the light along the upper and lower arcs respectively, and their extent noted. In taking subversion, the reflected image cannot be so easily watched even when the upper lid is held out of the way. Here the subjective part of the test must be relied upon.

One eye having been thus tested, in the four cardinal directions, the other eye should be properly placed and the various duction powers should be determined and noted.

Unlike the duction power, which is involuntary, version power is a thing of volition. Neither one should be depended on to the exclusion of the other. The result of these two tests (duction and version) should be compounded, if the surgeon would be safely guided in his operative work, or even in the non-operative treatment of heterophoria. Cycloversion has no existence since voluntary rotation around the visual axis is impossible.

No muscle should be weakened by a partial tenotomy whose ducting and verting powers are normal or subnormal. No muscle should be increased in strength by an advancement or by a shortening in which the duction and version are not subnormal.

A boyish trick played on Miles Walsh, 13 years old, may cost 14-year-old Johnnie Rice, of 152 Noble st., Chicago, Ill., his sight, and will disfigure his face for life. The Walsh boy lives a few doors away from the Rice boy, and they have been playmates. Young Walsh found some lime in a plasterer's box near his home and took a handful of it. He found Rice using a garden hose, and shouted: "Want some whitewash?" Then Walsh threw the lime at his friend. The lime came in contact with the water, and then struck Rice full in the face and entered his eyes. With a cry of pain he ran blindly about the yard in an effort to reach his house. The members of the family heard his screams, and after taking him into the house called a physician. The lad was later removed to the county hospital. One of his eyes is destroyed and the other will probably lose its usefulness. A portion of his nose is gone, and several burns on the cheeks testify to the strength of the lime. The Walsh boy is under arrest and will be charged with maiming Rice.

IS THE THEORY OF THE VICARIOUS FOVEA ERRONEOUS?

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In the June number of THE OPHTHALMIC RECORD, Dr. Verhoeff states that, "the theory of the vicarious fovea is erroneous," and reports a case of paradoxical diplopia to substantiate his statement.

I only wish that he had "proved" his case, because it would have settled the question about which there is yet much conjecture. It will take a series of many cases, such as the doctor has reported, to establish his point of contention. I wish to report two cases of binocular triplopia, occurring in my private practice within the last year, which I have carefully observed and studied, and to place them in evidence in support of the theory of a vicarious fovea. Incidentally, and before placing my cases on record, I shall call attention to some of the arguments advanced by Dr. Verhoeff and correct a serious error (one which is repeated) in one of his tests for the amount of squint present in his case.

The case reported by Dr. Verhoeff afforded exceptional opportunity for study, both on account of the intelligence of the patient and the high acuity of vision, 20-15 in each eye. The objective cover test showed 25° of convergence; while subjective tests showed "orthophoria," that is parallelism. "Prisms either base in or out produce diplopia, *the diplopia being most distinct when a prism of 25° base out was used, although this brought the two images exactly upon the two foveae.*"*

I have italicized the portion to which your attention is especially called. Now a prism of 25° will not bring the "two images exactly upon the two foveæ," in a case of squint of 25°. It is a well known fact that a prism causes a deviation of only about one-half of its refracting angle, hence a prism of 25°, base out, in his case, would leave the image in one eye about 12½° from the true fovea. Upon this same error, that is, assuming a 25° prism to cause a deviation of 25°, the doctor, further on in his paper, attempts to show that the new or acquired fovea has no fixed position. But the error is in the testing, not the position of the fovea.

In order to maintain the theory of a new or vicarious fovea he claims it is necessary to prove, (1) that suppression did not take

*Loc. cit. p. 301.

place after the new fovea was established, and that the patient was actually able to fuse images situated upon the true fovea in one eye and the vicarious fovea in the other; (2) that the patient possessed to a certain extent the perception of stereoscopic relief, and finally, (3) that the vicarious fovea had a fixed retinal position."

By the tests on this case reported by Dr. Verhoeff he was unable, he says, to establish any one of these points, but on the contrary "disproved" them. I may be mistaken myself in reading the doctor's paper, but it seems to me all of the tests but one (and this one partially objective test proved the opposite to what he wished, in my opinion), which Dr. Verhoeff made to prove, or rather to disprove, these three points were of a subjective nature. He acknowledges, however, that all subjective tests showed "orthophoria." If then, during subjective examination, "orthophoria" was present, he was dealing with the old or true foveæ, and not with the vicarious one at all. Hence his subjective tests were not of much value in this instance.

First, in his tests to determine the tendency to suppress and the power to fuse in his case, he says: "for instance, if a 6° prism, base in, or out, was placed before the squinting eye while the latter was screened, on removing the screen no corrective motion could be observed. "Often, but not always, this maneuver would produce diplopia."

Now, this was a partly objective test (the squinting eye having been screened brought the vicarious fovea into the test), and the mere fact that a 6° prism "often produced a diplopia," when placed before the squinting eye was strong evidence, in my opinion, that fusion of the image from the vicarious fovea in the squinting eye and the image from the true fovea in the straight eye took place when the 6° prism was not in position. Else why this diplopia when the prism was in position? Of course, single vision could be explained on the ground of suppression in the squinting eye, but this would be mere assumption, and "assumption" neither proves nor disproves anything. In this case, however, the presumption is in favor of fusion, rather than suppression, of the images. Because it seems altogether unlikely that an image, which is recognized (as shown by a 6° prism often producing diplopia) when thrown a short distance from the vicarious fovea on a less sensitive portion of the retina, would be suppressed when coming from the vicarious fovea itself. It is difficult to prove fusion in such cases, but Dr. Verhoeff's case comes as near to it as any I know of. This question is somewhat similar to that of "*amblyopia exanopsia*," hard to prove or disprove.

Since all of the other tests made in this case by Dr. Verhoeff were of a subjective nature, by which orthophoria was shown to exist, and, consequently, the true fovea coming into the test, and not the vicarious one, they do not bear on the case.

In order to explain paradoxical diplopia (cross diplopia in convergent squint, and homonymous diplopia in divergent squint) Dr. Verhoeff assumes "the absence of the function of binocular vision" in such cases; while in normal cases he assumes "there are three centers, almost entirely distinct from each other, namely; one for the binocular perception of relief, and two for monocular vision, one of the latter corresponding to the right and the other to the left eye."

Such an assumption to explain paradoxical diplopia, it seems to me, is unfounded to say the least. Besides, one of the cases immediately to be reported by me, refutes the assumption of "the absence of the function of binocular vision in such cases," since he had binocular vision immediately after an operation straightening his eye; showing binocular vision was not absent when the true foveæ were brought into position. For all we know he may have had binocular vision before the eyes were straightened, although no test served to bring it out.

Case 1. William D., a man of high intelligence, age 25, in good health, left eye has turned inward constantly for twenty years; has true fixation, amount of squint 20°; family history negative as to squint. Angle Alpha positive and 6° in each eye. R. V.=30/20. L. V. 20/30. Under Atropin:

R. V.=20/2.00 : 20/20 w +2D⌒+1.25 c 90°.
L. V.=20/200 : 20/20 — w + 3.50D⌒+1c 180°

Glasses were ordered for constant wear after deducting one-quarter diopter spherical from the right and one-half diopter spherical from the left. On July 11, 1900, two weeks after the glasses were ordered, Panas' operation was performed. The next day when the bandage was removed, by the cover test there was slight convergence; but the perimeter and subjective tests showed the eyes to be parallel. For the near point, a fine dot or Jæger No. 1, he had single binocular vision, as shown both by the control reading test and prism test. For the distance (for an ordinary dull object, as a white door knob) he had single binocular vision; but for a bright object, as a candle flame in a dark room, he had, at times, a horizontal triplopia; at times, a horizontal diplopia, and at times single binocular vision—and all within a few moments' time.

When triplopia was present the image from the right eye was

between the two images from the left, and was the brightest of the three, while the extreme right hand image was the faintest of the three. When diplopia was present (in this instance the images from the true foveæ were fused, forming one very bright image, while the faint image to the right was from the new or false fovea in the left eye), the left image was very bright, and the right image quite faint.

It required the most favorable surroundings to bring out the triplopia, as a bright light in a dark room, because looking at a white door knob immediately afterwards he had binocular vision, as shown by prism test. With the Kröll pictures, the trap and the mouse, for instance (the trap being on the left side of the picture in front of the eye that had squinted), he saw two traps and a mouse between them. He fused the homologous pictures of Kroll, however, thus showing single binocular vision for near under favorable conditions.

The phenomena here related were observed immediately after removing the bandage from the eyes, consequently before he had time to practice the function of binocular vision. The absence of the function of binocular vision does not hold in his case, certainly as regards the true foveæ. While the presence of triplopia showed that it was not absent even as regards the vicarious fovea. This patient was kept under observation for eight months, at which time he had single binocular vision for all distances. The triplopia in his case disappeared after the second day from the operation, and could not again be elicited.

Case 2. Is similar to the one just related, except on account of the amblyopia in the squinting eye it required a much longer time for him to establish single binocular vision after the operation. H. K., aged 23, a gentleman of high intelligence and in good health, had his left eye converge constantly and markedly since a baby. An older brother had convergent squint. True fixation is present in this case, although the amount of the squint is 60°. Test under scopolamin is as follows:

R. V. = 20/70 : 20/20 w + 1.50D.
L. V. = 20/200 : 20/100 w +1½D. ⊃ +2½ c 105°.

quarter diopter spherical from them. September 20, 1900, Panas' operation was performed. The next day when the bandage was removed the phenomenon of binocular triplopia manifested itself, both for the candle in the distance and for the Kroll pictures for the near; but neither diplopia nor single binocular vision could be brought out at this test. Triplopia in this case lasted for a week, when diplopia

was elicited, and in four weeks single binocular vision was obtained for a distance of five feet. The range of single binocular vision from this time on gradually extended in both directions, and at the end of two months he could see single at distances from one foot to ten feet. Inside of one foot he had cross diplopia, beyond ten feet homonymous diplopia. Six months after operation he had single binocular vision for all distances beyond six inches; and the vision in the amblyopic eye had increased to 20-40. The patient was faithful in keeping his good eye (the right one) tied up three or four hours each day, and practiced regularly each day with the stereoscope and bar-reading.

In this case, for the first two days after the operation, triplopia was easily brought out, and the image from the false or vicarious fovea in the left eye was brighter than the image from the true fovea. The image from the right eye was situated between the two images from the left, and was much brighter than either. After the second day the image from the false fovea (situated to the extreme right of the three images) began to grow dim, and, at the end of one week, disappeared altogether. In the meantime the image from the true fovea in the left eye (the extreme left one of the three images) grew brighter by increased practice of the eye, and caused a diplopia after one week. By practice with the stereoscope, the exclusion pad and the use of his glasses the vision was much improved in the left eye; the eyes rendered completely parallel, and single binocular vision established after four weeks' time at a distance of five feet, which latter gradually extended in range from six inches in front of the eyes to infinity.

Besides the above two cases of triplopia observed in my private practice, I had the pleasure of observing, last winter, a case of paradoxical diplopia in the clinic of Drs. Lewis and Van Fleet at the Manhattan Eye and Ear Hospital. In all three cases, in my opinion, a new or physiological fovea had been formed.

No one can read the life of William Hickling Prescott, by George Ticknor (1860), without feeling compassion for him and at the same time be amazed at the fortitude shown in his work. Somewhere about the age of twenty-three his left eye was struck by some foreign body and became blind; shortly after, his right eye became affected and he became practically blind. The doctors declared his whole condition to be due to a rheumatic affection, but as ophthalmology has become a science since 1854 he would perhaps today give it another name, "sympathetic ophthalmitis."

ON THE EMPLOYMENT OF AGAR-AGAR IN THE FORMATION OF A STUMP AFTER ENUCLEATION OR EVISCERATION.

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The disfigurement of the patient and the unsatisfactory fit of the prothesis have at all times been a incentive to form a stump by means of which one could obtain the best cosmetic results for the patient. Every operation so far devised has its points of merit. Yet the one operation, which, if it could be universally employed, namely, Mules's, would be the acme of perfection. However, there are certain points and disadvantages which invariably follow some cases of Mules's operation, that one hesitates in employing it universally. The two main difficulties of this operation to overcome, are: extrusion of the globe, and, secondly, the chronic irritation of tissue, necessitating the removal of the stump. Again, the cases of Mules's operation cannot be chosen ad libitum.

Now that the new Snellen's shell has proven itself to be more advantageous than the ordinary one, we may be able to obtain just as good a cosmetic result with it when the stump is suitably prepared, as when the Mules's operation is employed. Certainly, the Snellen shell has come to stay and it will do away with many of the operations now in vogue to secure cosmetic results. However, this should not deter us in trying to obtain a suitable stump even for the Snellen eye.

In order to obtain a stump which might remain prominent, the writer has experimented with agar-agar. The following is the report of the experiments:

The strength of agar-agar employed varies from 15 to 20 per cent solutions. The same is dissolved in distilled water, filtered, sterilized, and sealed, thus being ready for any future use.

The experiments were conducted upon two different plans. The one plan was to enucleate the eye-ball and then use the agar-agar; the other method was to eviscerate and then employ it. The latter method had some apparent advantages over the other, but whether they are of any value is a question. The one great advantage in this scleral stump is that it is more prominent than when you

enucleate the globe, this is a self-evident fact. But so frequently suppuration follows this method that it is not generally applicable in animals.

The great difficulty in all stump operations is the resulting cicatricial tissue which is bound to contract and thus spoil to a great extent the primary good results of any operation. However, the amount of cicatricial tissue and the contraction is less when the sclera is preserved for holding the material, which by a process of organization is to give the prominency of the stump.

All sorts of absorbable material have been employed to replace the loss of the globe, the latest being agar-agar. Whether or not agar-agar has thus been employed on patients is not a matter of record; neither has the experimental side ever been recorded.

The technique of the operation is as follows: After having removed the globe, bring the muscles lightly together with cat-gut and suture the conjunctiva over them. Use either a closely interrupted or a continuous suture for the conjunctiva. Before doing this, however, absolutely check all hemorrhage. Then, taking about 10 to 15 c. c. of the agar-agar as prepared and liquefied, inject the same by means of a syringe. Insert the syringe point at either internal or external canthal wound, forcing same well into the cavity and distend the latter to its utmost. In case of the evisceration, suture the sclera as is customary and then inject agar-agar from either end of the scleral wound and distend it as fully as possible.

The agar-agar readily solidifies and thus remains in place. Force a considerable quantity of agar-agar into either cavity so as to completely fill and distend it, for agar-agar contracts a trifle on solidifying. Agar-agar does not liquefy at body temperature, hence it will always remain solid until replaced by connective tissue. This replacing is achieved by the granulation tissue, which forces its way into the agar-agar and ultimately causes its absorption. This process goes on more rapidly in the enucleation than in the evisceration.

Experimentally, the writer has performed this operation twelve times—eight times on dogs and four times on rabbits. Of this number, four dogs and two rabbits received the agar-agar into the scleral cavity, the balance of the animals received it into the emptied Tenon capsule cavity. Out of a total of six injections into the scleral cavity, three proved a failure by extensive suppuration. On the other hand, of the six operations with the agar-agar into the

Tenon capsule cavity, each proved a success as far as the healing process is concerned.

Of each set, one stump was examined microscopically after six weeks had elapsed. In the one with the agar-agar in the capsule cavity the same had been completely absorbed and was replaced by an apparently equal quantity of connective tissue. In the other with the agar-agar in the scleral cavity a large portion had been replaced, but traces of the same were still visible. The remaining seven animals were kept for several months and closely watched as to the condition of the stump. As time passed on, a certain amount of contraction took place, as was expected. However, the ultimate result obtained in each animal was not as gratifying as the anticipation and immediate results of the operation had indicated. The stumps obtained by the above method are no improvement upon any other so far devised. In fact, the agar-agar is more rapidly absorbed than the sponge, (used as suggested by Belt or the writer). The truth of the matter is that all operations where an absorbable medium is injected, ultimately yield no better results as far as the movement of the prothesis is concerned than are obtained by a well formed simple enucleation or evisceration. The only operation of this nature that yields any encouraging and permanent results is where the glass ball is wrapped in sponge and implanted into the scleral or capsule cavity as suggested by the writer (vide THE OPHTHALMIC RECORD, June 1900, page 281).

Dr. Harold Gifford, of Omaha, Neb., who has also been experimenting with agar-agar comes to the same conclusion as the writer, namely that these injections yield only temporary results. He says, the ultimate amount of cicatricial contraction in his case completely overcame the first apparent prominency of the stump. He employed this method in one patient only.

After having experimented for the past six years with various absorbable media in the hope of obtaining a permanent prominent stump, the writer has come to this conclusion: Any stump obtained by the exclusive employment of absorbable material implanted either in the scleral or capsule cavity, always yields temporary results. The final result is not any better than that obtained in the well performed simple operations. Again, the only way to obtain a permanent prominent stump is by Mules's method or any of the modifications thereof.

Nevertheless, you do obtain a stump by this agar-agar method which is a trifle more prominent than by the simple enucleation or

evisceration: yet, the permanent amount is insignificant as not to be considered as a deciding factor in determining the choice of an operation. Indeed, the writer does not advocate its employment in any case whatsoever. As an experiment, the operation is of some value; but as for the clinical application it is absolutely nil, as are all methods in which absorbable material is exclusively used to produce prominency of the stump for the prothesis.

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HIGH DEGREE OF CONICAL CORNEA WITH HYPEROPIC REFRACTION.

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Among approximately a score of cases of conical cornea that I have seen in my practice, in all articles upon the subject to which I have access and in the text books, the refraction of eyes with conical cornea is said to be "myopic and highly astigmatic." The optical treatment of such cases is referred to as "by *concave* sphero and cylindrical lenses." The following is the first case or reference that I have seen of hyperopic refraction and resultant better visual acuity gained by correction with *convex* lenses:

R. S., female, age 19, candidate for religious orders, came to me complaining of poor vision and headaches, gave history of sore eyes in infancy, her sight had never been good and had lately become worse. She was wearing, R. —, 15 ⌒ — 1,25 , 180°; L —, 15⌒ — 1,00 , 180° from an optician; the visual acuity was not improved although objects were brighter. Her vision without correction was: R. 6/xviii ‖; L 6/lx =; the existence of conical cornea could be readily determined without instruments by the light reflex on moving the eyes, it was typical with Placido's disc, the ophthalmometer, ophthalmoscopy and skiascopy. There were several small maculæ in the cornæ probably the result of phlyctenular keratitis, to which the sore eyes in infancy might possibly be ascribed. Measured by the ophthalmometer there was, R. 8,00 D. astigmatism at 90°; L. 5,50, 180°. The refraction measured under cycloplegic, homatropin and cocaine, discs proved to be: R. —2,00 ⌒ +7,00 , 15°, V. = —6/xii : L. +11,00 ⌒+5,00 — 15°, V. = —6/xii . With this full correction she has comfortable vision.

INJURY TO THE EYE FROM THE EXPLOSION OF A WATER GLASS.

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The explosion of the water glass, which is attached to the boiler of most locomotives and stationary engines, is a rather common occurrence. Frequently the stoker, or the man in charge of the engine, is the recipient of an injury to one or both of his eyes, from the flying fragments of glass.

A few years ago I saw Dr. Argyll Robertson enucleate an eye that had been injured by an accident of this sort. The patient was a mechanic, who had been brought to the Royal Infirmary, at Edinburgh, on account of the injury. After the eye was extirpated, a section one-half inch long of the glass tube from a water gauge, was found occupying the vitreous chamber.

The water glass on the boiler of many locomotives and stationary engines is often placed in a very exposed position, and without and protection whatever to the glass. Hence the accidental breaking, or the spontaneous explosion of the glass, renders the infliction of quite serious injuries to the face and eyes of employes, whose duties demand that they make frequent inspections of the water gauge, a rather frequent occurrence. Accidents of this sort will doubtless become less frequent in the very near future, as many of the boilers of modern engines are being equipped with a water gauge that has the glass encased in a strong metal tube. At the back side of this tube, next to the boiler front, it is left open for a sufficient space to expose the glass. A mirror placed back of the gauge perfectly reflects this opening, and the man who has charge of the engine has but to glance into this mirror to note the presence or absence and the movement of the water in the water glass.

I was prompted to write on this subject, by the fact that it has fallen to my lot recently to treat several cases with injuries to the eye, where, in each instance, the injury was inflicted by a fragment of glass, projected into the eye by the explosion of the water glass on a locomotive boiler. The most recent of these cases is still under my care, and the operation, of which I shall speak presently, was performed on April 15th, but eleven days ago.

E. W. F., aged 14 years, a locomotive fireman on the Delaware

division of the Erie Railroad, came to my office on February 23rd, 1901. His right eye had been injured four days previous. While inspecting the water gauge on his engine and with his face quite near to the glass, the glass without any apparent cause, suddenly exploded throwing fragments in all directions. Both eyes were injured, the left but slightly. He was cared for by the Company's surgeon, at Susquehanna, who, recognizing the serious nature of the injury to the right eye, sent him to me.

There was a large star shaped wound in the lower nasal quadrant of the cornea that extended nearly to the center of this membrane. The iris was slightly torn at its pupillary margin. The lens capsule was lacerated and the whole lens opaque and much broken up. Near the center of the rupture in the crystalline, there was an appearance as of a triangular opening through this body to the vitreous chamber. But as the opaque lens debris in the pupillary area partly veiled the whole field of observation, no definite conclusion, as to the presence of a fragment of glass in the lens, could be arrived at. I informed my patient, however, of the condition of the eye, also of my suspicion that the eye might be harboring a piece of glass. There was considerable circumcorneal redness and tension was markedly increased. Pain was not complained of, but photophobia was sufficient to cause him to keep his head bowed and to seek to shade the eyes from light continually.

A few drops of a mild solution of atropine were instilled into the eye every four hours, and both eyes protected by a paper shade. He was seen frequently during the ten days that followed. The intolerance to light at the end of this time seemed to have increased some, although there was no pain and the circumcorneal redness had not increased. Realizing the fact that no improvement was to be expected, should the eye contain a foreign body, I decided to attempt the removal of the lens and thus, if possible, rid the eye of the probable source of irritation and danger.

The eye was completely anesthetized by using alternately drops of a freshly prepared solution of suprarenal gland and four per cent cocaine solution. At the completion of the section in the cornea, which was made downward with a small Græfe knife, my patient gave the eye a hard squeeze, that extruded the greater part of the lens and sent along such a generous quantity of vitreous, that I was obliged to immediately remove the speculum and close up the eye. There was no piece of glass among the fragments of the lens that came away. The eye healed very rapidly, ciliary injection was but

slightly augmented by the operation. He returned to his home in Susquehanna at the end of a week and was not seen again until six days later. At this time a thin, fleecy cloud of lens matter covered the pupillary area and no appearance suggestive of a fragment of glass could be seen. Photophobia and ciliary injection were about the same as prevailed previous to the operation.

The eye was seen at regular intervals, and on April 8, the cloudy lens matter had become sufficiently cleared away to enable me to again distinguish the outlines of the triangular body above referred to. By focal illumination, the dispersion of light could be witnessed as it was focused upon the triangular fragment of glass that occupied the pupillary area.

I informed my patient that I desired to make an attempt to remove the glass; this time to employ a general anesthetic. Should the attempt be unsuccessful I requested the privilege of being allowed to enucleate the eye. He consented to this arrangement, and returned to his home to make arrangements to enter St. James Mercy Hospital the following week.

On April 15, chloroform was administered and, assisted by Drs. Kelly and Phillips, I made small upward section of the cornea with a Græfe knife. A pair of iris forceps were then introduced into the anterior chamber, but a grasp upon the fragment of glass firm enough to draw it out could not be obtained. Repeated attempts only resulted in rolling it back into the posterior chamber out of sight. A wire loop was then introduced into the posterior chamber under that part of the iris where the fragment was seen to disappear.

The first attempt was successful in removing a jagged fragment of glass about the size of a half kernal of wheat.

Following the operation there was considerable pain for two or three hours, after which the eye was free from pain. Both eyes were bandaged for the first twenty-four hours, after which all covering, except a paper shade was discarded. A few drops of a one per cent atropine solution were instilled every four hours for the first few days following the operation. When he left the hospital a week later the eye was doing nicely and the photophobia was very much less than at any time since the injury.

The last time I saw the eye was on April 26, eleven days after the operation. Tension was normal and the eye was nearly free from redness. The pupil was blocked with a thin plastic exudate and vision was ability to count fingers at a distance of one foot from the eye.

FURTHER REMARKS UPON THE SURGICAL TREATMENT OF HIGH MYOPIA, WITH THE REPORT OF AN ADDITIONAL OPERATION. *

BY CHARLES W. KOLLOCK, M. D.
CHARLESTON, S. C.

At the last meeting of this Association I presented a paper upon the surgical treatment of high myopia, with the report of a case which I shall repeat as it bears upon the report to be made now.

G. F. White, aged sixteen years, was brought to me August 30, 1895, for defective vision. Vision in each eye separately was 3/CC, and with —13D, was 15/L; the ophthalmoscope showed no crescent or degenerative changes in the retina or choroid. He was given a —10 D, which was worn until April 20, 1899, when was again brought to me. The myopia had increased to 16 D, and with these glasses for both eyes he could see 15/L. On account of the rapid increase of the myopia, his age, and the favorable condition of the vitreous, retina and choroid, surgical treatment was advised. Discission was performed several times, and then the lens matter was removed through an upward incision in the cornea, but no iridectomy was performed.

The recovery was prompt and uneventful, and but a slight distortion of the pupil—due to iritic capsular adhesions—remains as a trace of the operation. Without a correcting lens his vision is 15/L X X (?) against 3/C C before the operation, and with the correcting lens (+1.50+2.50 cyl. 90°) he sees 15/X L as against 15/L with the correcting lens (—16 D) before the operation. With +5,+2.50, cyl. 90°, he reads Jæger No. 1, at ten inches with ease. Discission has been performed several times on the second lens, which is now undergoing absorption.

From this limited experience I have no hesitation in saying, with others, that the operation is justifiable in most cases of 12 D and over, in which degenerative changes have not caused floating bodies in the vitreous, retino-choroiditis, hemorrhage, and beginning retinal detachment. That the existence of these changes, or conditions, in a passive state, should not in all ceses be a contraindication to the operation.

2. That the most successful results will be attained in children, young adults, and those in whom the vitreous, retina and choroid, are in a healthy, or comparatively healthy condition.

*Read before South Carolina Medical Association, April 19, 1901.

3. That in all cases discission should be performed a number of times in order that absorption of the lens may be given a fair chance, for by this operation the dangers of retinal hemorrhage and detachment are at a minimum, and that of infection is not seriously increased. That detachment and retinal hemorrhage are far less apt to occur if the conditions change gradually, and not so suddenly, as would be the case if extraction were performed either with, or without a previous discission.

4. The results to be achieved, which are increase of visual acuity and field, more than counterbalance the dangers of the operations when proper precautions are observed.

Soon after the above report was made the second eye was operated upon by discission, which was repeated at intervals (i. e., after resulting inflammation subsided) until the entire lens substance had been absorbed, which required from six weeks to two months. The result was in every way satisfactory and much more so than that of the method pursued in the first eye, which was discission and then extraction through corneal incision.

In the first there was a slightly distorted pupil and a high grade of astigmatism, which continues to this date. In the second there is a round and movable pupil, no astigmatism and better vision.

The correction of both eyes at present is as follows: R. vision, without a glass, 15/L X X ? with +1, +3, cyl. 908, 15/XL . which is about the same as at this time last year. L. vision, without a glass, 15/C; with +4. 15/X X. For reading Minion print with either eye at 12 in. R.+5,+3, Cyl.—90°—; L.—+6.

I wish to reiterate what I have said in favor of the operation of discission without extraction, especially in the cases of children and young adults, and am inclined to think it the safer and better method for many of maturer years.

Taylor, the English golf player, is a man of few words, but his eyes are always on the alert for any new sight, and he rather ridicules the notion that there is anything the matter with his vision. He remarked that the trouble about his left eye, of which so much has been said, was more in a doctor's imagination than any reality. It has always been as bad as it now is, and he never noticed anything wrong with it until he went under physical examination by an army surgeon. He allowed that it might hurt him somewhat in his putting game, but said that it had never prevented him from winning in the past, as far as he knew.

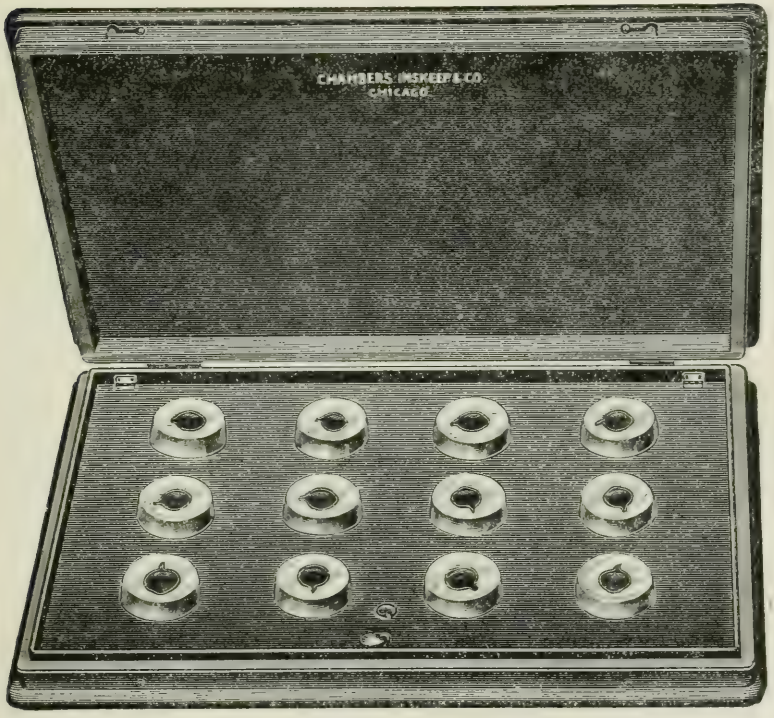
A BOX FOR MOUNTING EYE JARS.

BY BROWN PUSEY, M. D.

OF CHICAGO.

(Illustrated.)

At the St. Paul meeting of the American Medical Association, in the Pathological Exhibit, I showed some jelly mounts of eye sections in the case pictured above. This box was the subject of favorable comment, and this tempts me to publish a picture of it. The only original idea in connection with this box is in taking advantage of the fact that the glass jars, which are made for putting up jelly



mounts, are sections of cones with the base of greatest diameter for the bottom. This fact allows us to put holes in a board that will permit the greater part of the jars to pass through but which will catch the jars at the base and hold them tightly. The advantages of such an arrangement will suggest themselves. As will be seen in the picture, this board is mounted in an appropriate wooden box, and is put on hinges and can be locked down; when it is so locked the

jars cannot be removed. A convenient size for these boards is 12 in. by 18 in., and in such a board twenty-four eye-jars can be mounted; a convenient thickness for such a board is about ¼ in.

These boxes can be made for from $3 to $5, according to the care taken in making them. Chambers, Inskeep & Co., 88 Wabash Ave., Chicago, because of the fact that they have already had demands for these boxes, intend keeping them in stock.

Remarks on the Training of Ophthalmic Surgeons. A. Freeland Fergus.—The importance of proper training for the ophthalmic specialist, especially if there is to be a separate register for them, is noted and the lack of such training in the English system of education remarked. Fergus thinks that even in the preliminary education a difference should be made; a better acquaintance with elementary mathematics ought to be required than of the average students, and he shows how a knowledge of trigonometry and analytical geometry may be useful, and how the lack of it leads to mistakes in text-books, articles, etc. The earlier years of his medical education should also embrace biology, chemistry, human anatomy, including histology, and the physiological course should include adequate instruction in physiologic optics, movements of the eyes, the cerebral mechanism of sight, etc. A knowledge of physics is essential, and the student should be required to attend an ophthalmic laboratory for at least twelve months, should master such instruments as the spectroscope, spectrometer, spherometer and the diffraction grating. These are, of course, independent of general medical studies, including pathology, therapeutics, etc. A course in special pathology is particularly desirable. The amount of attendance on formal lectures is difficult to determine, but clinical work should be compulsory and cover a period of at least three years, taken up entirely with examination of patients under competent teachers.—*British Medical Journal.*

We have received the eleventh annual report of the Eye, Ear and Throat Hospital of New Orleans, La. This hospital is run for the benefit of the poor only. Other people are excluded by express order of the Board of Trustees. During the past year 4,879 persons were admitted and 848 operations performed. Five thousand dollars are appropriated annually by the city of New Orleans for the support of this institution.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME X, No. 9. CHICAGO, SEPTEMBER, 1901. NEW SERIES.

EDITORIAL.

CATARACT IN INDIA.

The June number of the *Indian Medical Gazette*—special ophthalmic number—must not be overlooked by the ophthalmic surgeon. This is evident when one notices articles by the great cataract operators of India. Mr. T. H. Pope, of the government ophthalmic hospital, Madras, has an article on cataract and its extraction, and draws his conclusions from 5,290 cataract operations done within the last five years, and over 4,000 operations done before 1896. Another article is on extraction of cataract in the capsule, by Mr. Henry Smith, of the Jullendar Civil Hospital. This surgeon reports 1,804 extractions from June 1, 1899, to May 1, 1900; and 1,650 extractions from May 1, 1900, to April 2, 1901. Mr. Park, of Jaipur, reports 2,414 operations in five years. Mr. J. Lewtas, Professor of Ophthalmology, Medical College of Calcutta, speaks of 147 extractions during the "past three months." Other reports on the subject of cataract extraction are from gentlemen who have done hundreds of operations. The number of cataract extractions done in recent years and recorded in this special number and in the July number, which evidently contains the overflow from the special number, runs up to nearly 25,000 cases.

When one compares this immense number of operations with the number of operations recorded in the largest eye clinics in America and Europe, one realizes from what a large experience these Indian eye surgeons speak, and he appreciates that we have a most valuable contribution to ophthalmic literature.

The different reports are full of interest. Pope, in his general remarks, gives it as his opinion—after 9,000 operations—that the surgeon should refrain from being in a hurry to publish his views in regard to what he thinks is the best method of operation, and as to what are the causes of different complications. He says that many of the difficulties met with in one's early operations vanish later

on; and, in this connection, calls attention to Fuch's dictum. "The greater the operative skill grows with practice, the less frequently do unlucky accidents happen to him." This operator often in the Madras hospital has a run of 300 successful cases, but immediately following this will come four or five failures, and down goes the average. Pope has a very large percentage of success; in senile cataract his column of successful cases runs along at about 91 per cent. He considers as cured cases those which, on leaving the hospital had distinct vision tested by types and by the use of lenses (X10. for distance and X16, for reading). Pope applies atropin to the eye two days before the operation and then a shade; the following day the eye is observed and washed with boric solution and the shade reapplied. If on the third day the parts appear bright, the operation may be performed; but if not, it is delayed. Before the operation the eyeball is syringed with carbolic solution (1-1000). Before the section he makes a capsulotomy with a Bowman's needle. His incision is with a Græfe knife including one-third of the cornea, and in cutting out he makes a conjunctival flap. After the operation, both eyes are closed with bandage. The dressing is renewed next day and the bandage is taken off on the third or fourth day. In reference to iridectomy, Pope says: "I would say that for beginners, those who have not regular operative work on cataract and those who have not acquired the necessary confidence in their skill, iridectomy is a useful and needful help." He seldom does iridectomy; and he does not do extraction of the lens in the capsule, because of the danger of loss of vitreous. He formerly considered loss of vitreous of no consequence; now he is afraid of it.

Of Smith's 1,804 cases, 692 were extractions in the capsule; and of 1,650 cases, 1,469 were extractions in the capsule. In his table there is pretty high percentage of cases (averaging 9.8 per cent) in which there was a loss of vitreous. But this operation does not regard the loss of one-third or less of the vitreous as a matter of much importance. He says, however, that extraction in the capsule is not an operation for those of little experience. One of the most serious complications in this operation he says is the danger of the capsule giving way when the lens is half way or two-thirds out—letting the core escape—and to retract with some lens matter. Smith operated on 688 cataracts in the recent month of March—"A month in which I did 44 cataracts on each of two days."—Lewtas, in speaking of 147 extractions during three months, says that in this number he did iridectomy in 33 cases. BROWN PUSEY.

REPORTS OF SOCIETIES.

THE SOCIETY OF OPHTHALMOLOGISTS AND OTOLOGISTS OF WASHINGTON, D. C.

February—May, 1901.

Operation for Restoration of the Superior Cul-de-sac of the Conjunctiva. Dr. Burnett exhibited a woman about 40 years of age on whom he had operated for restoration of the conjunctival sac, this having been destroyed by boiling coffee. Enucleation having been previously done, the eye being lost from the injury, the lid was dissected from its adhesions and a skin-graft, taken from the arm of the patient, was inserted. The graft was held in position by a piece of hard rubber, carefully fitted, and by sutures to the lid. Perfect union took place, and the result six months after the operation was remarkably good, an excellent cavity for the lodgment of an artificial eye being obtained. The lower cul-de-sac had previously been enlarged by a mucous membrane graft. The result in this case had been only fairly successful, and Dr. Burnett said that he intended to repeat the skin grafting operation upon the lower lid.

Optic Nerve Atrophy from Wood Alcohol Poisoning. Dr. Belt reported a case of complete atrophy from drinking "jamaica ginger." He spoke of the fact that unscrupulous chemists used wood alcohol in the preparation of jamaica ginger. Dr. Burnett also related a case of complete blindness with atrophy from wood alcohol poisoning, and thought a law should be passed placing the same restrictions upon the sale of this drug as upon that of other poisons. In his case the poison was taken through a misunderstanding, the druggist having prescribed it for external application.

Congenital Dislocation of the Lens. Dr. Wilmer read the essay on the eye, entitled "A Case of Congenital Dislocation of the Lens." In the case reported, the patient, a man 50 years of age, applied for treatment because of a blow upon the right eye, inflicted by the stroke of a base ball bat. The eye was inflamed and examination revealed about one-half of the transparent lens lying in the anterior chamber, the lens being tilted at an angle of 90 degrees to its normal position, and being firmly held by constriction of the pupillary border of the iris. Eserine was instilled in order to hold the lens in its acquired position with a view to extraction. Being prevented by illness from seeing the patient for several days, Dr. Wilmer was surprised at his

next examination to find the lens had disappeared into the vitreous. The patient stated that his eye was as well as it had ever been. Ophthalmoscopic examination revealed the lens lying in the vitreous below the pupil. Upon examination of the other eye a similar condition was found, and it was evident that the case was one of congenital dislocation. With + 4 Sph. vision was 20-70 in the right and 20-50 in the left eye. There was family history of defective sight, but no direct proof that other members of the family had the same anomaly. There were opacities of the vitreous, and choroidal atrophies, indicating the myopic condition if the lens had been in normal position. The patient left the hospital, feeling himself cured.

In the discussion Dr. Burnett spoke of the constant menace from the presence of a lens in the vitreous, and thought it possible in almost all cases to extract the lens without serious loss of vitreous; since, with the escape of aqueous, the lens would, with the aid of gentle pressure, come forward and block the exit of vitreous. Dr. Butler was inclined to think that the danger from excessive loss of vitreous could not be ignored.

Hemorrhage after Cataract Extraction. Dr. Burnett showed an eye which he had enucleated for hemorrhage following extraction of the lens—the first case of the kind of which he had had personal experience. The subject was a healthy woman 65 years of age, seemingly a typical case for securing a good result. The extraction was done without iridectomy; the iris resumed its normal shape and position, and everything appeared favorable. But four and one-half hours after the operation the patient was seized with nausea and vomiting, and coincidently blood began to ooze through the dressings. A week later the eye was enucleated as a precaution against possible future trouble. Dr. Burnett spoke of the infrequency of such cases, of the impossibility of prognosticating them, and of the disappointment to operator and patient resulting from this catastrophe.

The Use of Protargol. Dr. Polkinhorn read a paper entitled "Protargol in Purulent Affections of the Eye." After presenting the characteristics and physiological action of protargol, Dr. Polkinhorn spoke of its advantages over silver nitrate—especially of its greater penetrating power and of the less intense reaction following its application. In gonorrhoeal ophthalmia he had used protargol along with silver nitrate; he thought there was no doubt that more cases were saved by this treatment than with the silver nitrate alone. Protargol should be used in 2 to 5 per cent solution and applied four or

five times a day, the silver nitrate being used only once a day. Protargol was especially recommended for the prevention of ophthalmia neonatorum.

In the discussion Dr. Malone said that his experience with protargol had been very unsatisfactory; he had not found its action reliable, and it frequently caused great pain. Dr. Butler agreed with Dr. Polkinhorn as to the value of protargol as an adjuvant to silver nitrate in the treatment of gonorrhoeal ophthalmia. In regard to the prophylaxis of ophthalmia neonatorum, Dr. Burnett thought protargol too uncertain in its action to displace Crede's method, which was known positively to destroy the infection.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

G. Anderson Critchett, M. A., F. R. C. S. E., President, in the Chair.

Friday, July 5, 1901.

Blindness Resulting from Sodium Salicylate. Mr. Simeon Snell related the following case: The patient, a girl, suffered from acute articular rheumatism, for which sodium salicylate was prescribed. She woke from sleep at 7:30 a. m. and said that everything was dark in front of her. On the medical attendant's visit between 11 and 12 he found her unable to distinguish between light and dark. The next day Mr. Snell saw her and found her perfectly blind. The ophthalmoscope disclosed nothing abnormal in either fundus. The following day he again saw her, when she was succumbing to pericarditis with endocarditis. Again nothing abnormal in either fundus was detected. There was no return of vision, and she died that same evening. It was calculated that the total quantity of sodium salicylate taken must have been 140 grs., if not 160 grs., in sixty hours. Mr. Snell said he thought that there could be very little question that the sodium salicylate was the cause of blindness in this instance. The number of similar cases recorded was very limited.

Sarcoma of Conjunctiva. Mr. J. B. Lawford reported further notes of a case of sarcoma of the conjunctiva. The patient was a woman whose conjunctiva showed marked and increasing pigmentation when she was shown to this society on June 11, 1896. In July, 1896, two pinkish nodules appeared. In August, 1896, the cornea became hazy and the conjunctiva raised. In October, 1896, the eye-

ball and conjunctiva were removed, and were examined by Mr. Devereux Marshall, who reported the growth to be a pigmented sarcoma. The pinkish nodules consisted of connective tissue, cells, and blood vessels. There was no growth whatever within the eyeball. In May, 1897, the patient had a serious illness with brain symptoms, and it was thought an intracranial growth was present. However, she got better. In October, 1897, some new growth was seen in the orbit, and the general health was not good. On October, 1897, the growth was removed and was examined, and found to be a sarcoma. In August, 1898, another recurrence was seen. On September 1, 1898, the growth was removed and examined by Dr. Jenner, and found to be a sarcoma. In April, 1899, another pigmented spot was seen, and in the following September another had appeared in the upper lid. On September 14, 1899, the whole contents of the orbit was removed. On March 20, 1900, the patient was very ill, and died on April 28, 1900, but no necropsy was obtained. Mr. Lawford unfortunately did not hear of her death until some weeks later, and owing to the patient's very irregular attendance, and also to her refusing to have a radical operation in the early stage of the disease, her chances of cure were much diminished.

Conjunctival Bridges and Pouches: Union of Retrotarsal Folds. Major H. Herbert, I. M. S. (Bombay), described a condition found in nine upper lids of seven patients of all ages. One or more retrotarsal folds had contracted permanent adhesions with the tarsal conjunctiva evidently while displaced downwards through swelling in some previous inflammatory attack. The adhesions were sometimes multiple along the summit of the one fold; in other cases smaller adhesions of underlying folds were found beneath the principal ones. The folds had retracted, except when held by the adhesions, thus leaving the permanently displaced portions as broad or narrow bands, or bridges of conjunctiva connecting tarsus and fornix, and freely admitting the passage of a probe beneath them. There was no history of injury in any case, but in the majority there was or had been trachoma. Two cases were also mentioned in which small bridges of union had formed between folds in the lower fornix. In another patient recovering from acute conjunctivitis (membranous or pseudomembranous) the actual formation of these adhesions was seen. The union was primarily by means of fibrinous exudation, which apparently became organized. Finally another upper lid was mentioned in which a broad fold came down over the tarsus, and had adhesions not

only at its summit but also over the greater part of its surface, leaving only a shallow pouch or pocket under each curved lateral margin.

Mr. Bishop Harman stated that he had seen a similar condition in a patient in South Africa.

Sympathetic Irido-Cyclitis. Mr. Sydney Stephenson communicated notes of a case of mild sympathetic irido-cyclitis in a child fifty-four days after removal of an injured eye. The interval between the original injury and the enucleation of the eye was twenty days. The injured eye was affected with puro-plastic cyclitis, but micro-organisms could not be recognized. The patient when seen sixteen and a half months after the accident had made complete recovery.

Mr. Devereux Marshall asked Mr. Stephenson if this was a record case. He himself had seen a mild case develop between two and three weeks after an eye had been removed for injury, but he had never seen a case develop so long as fifty-four days after enucleation.

Mr. Stephenson said that he was not certain what was the longest interval observed, but he did not think that his case was a record.

The following card specimens were shown:

Mr. C. Wray: *Gumma of the orbit, which occurred forty years after primary syphilitic infection.*

Mr. W. C. Rockliffe: *Cystic growth of the retina (probably carcinoma) secondary to a primary scirrhus of the breast. There was evidence of both eyes being affected.*

Mr. Marcus Gunn: *Exceptional appearance of a choroidal lesion, probably tuberculous.*

Mr. Inglis Taylor: *Peculiar form of vitreous opacity.*

Mr. Bishop Harman: *Hole in macula.*

FRENCH CONGRESS OF OPHTHALMOLOGY.

Paris, May, 1901.

The following are extracts of some of the papers and discussions:

Treatment of Blepharitis with picric acid.—M. Fage has employed picric acid since 1898, with considerable success in the treatment of blepharitis marginalis. It is used in an 8 or 10 per cent solution, either in water or glycerine, applied to the lid edges.

M. Petit called attention to the fact that picric acid in cases of corneal ulcers acted as a decided corneal stimulant.

Detachment of the Retina following excision of the sympathetic ganglia for exophthalmic goitre.—M. Bellancontre (Paris) reported

this very interesting condition as taking place after the removal of the sympathetic ganglia (superior and middle) for exophthalmic goitre. He also saw it produce a cataract and a progressive retinal detachment in another case.

M. Abadie related cases which had been greatly benefited by the removal of these ganglia. He says, however, that the cases must be well selected; for, not every case of glaucoma or goitre is due to a sympathetic nervous disturbance.

M. Fage cited a case where no improvement followed the excision of the ganglia but instead a decided and pronounced anæmia supervened. He says, however, that pain in hemorrhagic glaucoma is arrested by the excision.

M. Dor recommends the ganglion excision as performed by Jadoulay but not the extensive excisions as are now performed. Jadoulay and Dor have not observed a cataract or a retinal detachment follow the excision of the ganglia. Nevertheless, they did notice these conditions in a rabbit after an excision.

Iritis and Keratitis following ear diseases. N. Pechin says:—The ocular lesions following ear diseases have received more thorough attention since the bacteriological side of the question has been investigated. The eye quite frequently suffers serious lesions, i. e., optic atrophy and dacryo-adenitis after some of the infective ear diseases. The complication of the uveal tract subsequent to ear lesions is rather rare. He reports a case of a young man, 22 years of age, who, convalescing from a serious infective ear trouble, had developed a secondary facial paralysis in connection with a bilateral iritis and a one-sided parenchymatous keratitis. The left eye recovered with normal vision, while the right eye regained about one-half of its acuity.

Blastomycetes in Ocular Pathology. M. Parisotti.—Careful pathological researches were made in a number of cases of retinal glioma and choroidal sarcoma, but no blastomycetes were found. On the other hand, however, he has found a great number of blastomycetes in quite a few inflammatory tumors, pterygia and trachoma. These latter findings are certainly novel and deserve further investigation.

Tumors of the Lachrymal Gland.—M. Fromaget reported three cases of this gland and the orbit. The first was a tumor which developed after an inflammatory reaction of the palpebral glands, which had lasted many years. The histological examination proved it to be cellular, spring from the mesoderm, containing mucous cells

and conjunctival fibers. In truth it was a sarco-myxo-fibroma. The second was one of tubular epithelioma in the orbital lachrymal gland. The third was a case of a hydatid cyst of the lachrymal gland which had developed within six months.

The Treatment of Non-operative Progressive Myopia.—M. Mendoza, Paris, gives the following rules:

1. Employ an atropine collyrium.
2. Carefully correct the refractive error.
3. Keep eyes continually under close observation.
4. If myopia is progressive, use pilocarpine solutions and massage or pressure daily.

Metastatic Corneal Lesions in a Case of Pneumonia.—M. Petit reported a case in which on the fifteenth day of a severe pneumonia an extensive serpiginous corneal ulcer appeared. Later on a panophthalmitis supervened. A bacteriological examination showed the presence of the pneumococcus. In this connection, M. Puech reported a case of corneal metastasis following a gastric epithelioma.

The Treatment of Ocular Complications in Arthritis. M. Abadie.—In inflammations of the cornea, iris or ciliary bodies, accompanying arthritis, he never uses any local irritating applications but simply an iodoform ointment. In addition he prescribes sodium salicylate and quinine. In aggravated cases he uses the tincture of rhus toxicodendrum (15 to 25 drops). The appropriate local ocular treatment must in addition be rigidly adhered to.

The Value of Iridectomy in Glaucoma.—M. de Wecker (Paris) made the following very brief and interesting remarks on these points: 1. History of the evolution of the surgical cure for glaucoma. In 1830 McKenzie made the first scleral puncture for acute or irritative glaucoma. Guerin in 1869 recommended the puncture of the sclera or opaque cornea when there was an excessive formation of vitreous humor and where medicines had failed to effect a cure. Desmarres made repeated paracentesis in such cases. To von Græfe belong the credit of instituting an iridectomy as a cure for glaucoma. von Græfe recommended the iridectomy in the prodromal period of glaucoma; in all forms of acute inflammatory varieties; in amaurosis with optic nerve head excavation, where the initial lesion lay in the optic nerve. The von Græfe iridectomy is still used for chronic diffuse keratitis associated with antero-sclero-choroiditis, in which there is an infiltration of the sclero-corneal margin; for pannus of the cornea complicated by a more or less serous iritis; for cicatricial cornea with synechiæ or for ectasis of the cornea and

globe. The iridectomy is contraindicated in cases of buphthalmus.

2. *The various substitutes proposed for iridectomy and their respective value and indications*: Eighteen years after the introduction of the iridectomy, Snellen, at the international congress at Heidelberg, proposed the operation of sclerotomy as a cure for glaucoma. Before this, in 1860, Hancock attempted to introduce another operation, viz., the cutting of the ciliary muscle. Stellway, in 1868, proposed the scleral section, and in 1869 de Wecker again took up the question of simple sclerotomy. In 1890 Rochon-Duvigneaud proposed a modified sclerotomy in cases of buphthalmus in infants. In 1893 Knies advocated an irido-sclerotomy. Snellen, with several others, has given preference to sclerotomy and Terson recommends a sclero-iridectomy. The sclerotomy is to be preferred to iridectomy in: first, infantile glaucoma or buphthalmus; second, glaucoma absolutum or glaucomatous degeneration; third, in prodromal glaucoma; fourth, in doubtful cases of glaucoma where there is increased tension; fifth, as an auxiliary to an iridectomy.

The latest operations devised as substitutes are the elongation or stretching of the external nasal nerve and the resection of the sympathetic cervical ganglion. The former is advocated by Badal and the latter by Jonnesco. Abadie is an ardent defender of these operations. The operation has received the name of sympathectomy. It is not looked upon as a substitute for the various operations now performed for glaucoma. de Wecker is not a confirmed or absolute enthusiast, but reserves this operation for malignant glaucoma. The results are not permanent, and it therefore implicates the success of other operations upon the eye directly, as these are then often undertaken too late.

3. *The tendency to eliminate certain forms of glaucoma from the surgical treatment and reserve them for the medical treatment only.* He says that Laqueur, in 1877, first introduced eserine for the treatment of simple chronic glaucoma. By means of eserine Laqueur not only retarded the time of operation but also eliminated certain prejudicial symptoms from the very beginning. So long as the visual field does not contract the myotics can be safely employed. Should, however, the field begin to contract, recourse to an operation is imperative, for the success depends upon the early interference, especially in the early stages of the disease.

The value of iridectomy as a cure for glaucoma—its future. It is the clinical report of cases, he says, which will decide this intricate question. Unfortunately these patients, as soon as operated

upon, disappear and thus do not allow the surgeon to draw the proper conclusions as to the results. Therefore, before coming to any definite conclusion, after having studied the various forms of chronic glaucoma and its treatment, he obtained the opinion of some of his confreres, such as Abadie, Axenfeld, Badal, Barde, Coppez, Critchett, Czermak, de Champs, Deutschman, Dor, Dufour, Fage, Fuchs, Haab, Hess and others of as good repute. The majority of these were in the favor of surgical intervention in nearly all forms of glaucoma. de Wecker then summed up his very valuable paper by this truly axiomatic remark: "The curative action of these anti-glaucomatous operations upon the eye is in inverse ratio to the increased intra-ocular tension. The curative action is wanting when at any time there is no acute increase of intra-ocular tension prior to operation and when pericorneal and sclero-cicatrization is brought about with normal conditions of intra-ocular pressure.

Dr. Geo. J. Bull, of Paris, read a paper on the *Field of Relative Convergence*. After pointing out that the so-called "amplitude of convergence," and the "relative convergence at the reading distance," are imperfect attempts to measure the width of the field of relative convergence in two places arbitrarily chosen; he explained his stereoscopic method of measuring the entire field, and showed many graphics of the field taken in this way. His method made it apparent that the field in every case is composed of three regions, those of orthophoria, of esophoria and of exophoria; and he showed how these regions were moved in different directions by spherical and prismatic glasses. He then passed in review the various anomalies of refraction and of convergence, showing how the graphics or diagrams of the field enable one to appreciate the difficulties of each case and to determine whether the symptoms are to be relieved by glasses or by the more radical measure of an operation.

GEO. F. SUKER.

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

Meeting held in Philadelphia, April 22, 1901.

Dr. William Thomson in the chair.

Dr. Charles A. Oliver exhibited a case of *Suppurative Choroiditis*, the result of an infective traumatism in a three-year-old boy. The conditions were typical, the brunt of the uveal disturbance having been exerted upon the posterior half of the tract. It was his intention to remove the eyeball, which was blind, in order to make a series of bacteriological and histological studies as to the char-

acter of the infection and the pathological conditions of the inflamed parts.

Dr. P. N. K. Schwenk gave the details of a similar case in which the eye had been struck with a piece of wood when the patient was two years of age.

Dr. McCluney Radcliffe showed an example of *Vascular Keratitis* in a nineteen year old man who had been under treatment for a long period of time. There was not any history of syphilis nor were there any evidences of granular disease. In spite of the most careful hygiene and the best therapy, the conditions had increased until at the time of the meeting there was a large deeply saturated ulcer of several days' standing situated at the site of the initial lesion.

Dr. Frank Fisher gave a most excellent example of a chronically recurrent case in a forty-five year old negro. The corneal ulcer was crescentic and probably infectious in type.

Drs. Thomson and Oliver laid emphasis on the general treatment of such cases and spoke of the absolute necessity of determining the etiological factor in every instance. Dr. William L. Zuill stated that his experience had taught him that calomel, freely applied locally, was an extremely efficient remedy. He had seen the condition shown in the present case appear as the result of excessive ingestion of sugar. Dr. Schwenk made some remarks upon the value of harmless anodynes in producing many hours of continuous sleep, thus permitting the parts to obtain undisturbed rest for long periods of time.

Dr. Thomson presented a case of *Gumma of the Iris* in which, in spite of negative history, the symptoms rapidly subsided under specific medication, giving as it were a therapeutic proof of the diagnosis. On admission there was a moderate hypopyon and a small-sized vascular growth at the root of the iris over which the iris-tissue seemed destroyed and the adjacent sclera quite prominent. At the time of the presentation of the case, both the swelling and the hypopyon had disappeared, the eye being comfortable and quiet in spite of quite a number of posterior synechia. Vision had improved from one two-hundredths to one-tenth if normal. Dr. Thomson showed a second case which was practically similar with the other. In this one there was a distinct history of syphilis. Both occured in negro subjects.

Dr. Oliver stated that in his experience most iris gummata appeared either at the minor or the major vascular circle. With the latter there was almost always an associated ciliary involvement, fol-

lowed in marked cases by more deeply seated uveal trouble. In this type of cases vision, while not greatly affected at first, often temporarily failed to a marked degree owing to a discharge of translucent gummy material into the intracoular lymph spaces. He considered this symptom as a good sign for rapid convalescence. In a few cases he had had the good fortune to secure such a restitution of the transparency of the media as to distinctly see the eyeground and to permanently obtain practically normal vision. In these cases there were the characteristic pictures of neuro-retinitis consecutive to uveitis. Leucocytic hypopyon he had found most frequently marked in cases in which inflammatory reaction had been extreme and in young subjects. His experience showed that the disease was extremely prevalent among the negroes. In every case in which he had been enabled to make after studies he had found the involved portion of the uris to be friable, discolored and thinned. His best therapeutic results had been obtained by the free use of mercury by inunctions, taking care to prevent any toxic effects. Dr. Thomson had found the plan of having the patient rub the mercury on the skin of the dorsal surface of the foot, with the wearing of a covering stocking, to be the most rapid and the most efficacious method of employment of the drug.

Amblyopia.—Pearse argues for the action of the sympathetic in producing amblyopic conditions, especially hysteric ones, holding that the effect on the circulation of the fundus is mechanical in hysteric blindness. He says our knowledge of the manifold manifestations of hysteria does not permit us to say positively that the retinal elements or the conducting channels of the visual centers themselves are free from the influence of this disease. The effect on the visual apparatus of fright, shock, emotion, mental exhaustion, overexertion, etc., is essentially the same as in hysteria, and whether the sympathetic is involved in these results is as yet a question. In view, however, of the known action of the sympathetic, and many cases observed, which present the same conditions in the vessels of the fundus that are produced by the sympathetic elsewhere in the body, he asks if the sympathetic does not influence the fundus, what does? Until a more plausible source of influence is positively demonstrated, we cannot do better than accept this explanation, which is far removed from being a theory.—*Albany Medical Annals.*

CORRESPONDENCE.

THE ENDOTHELIUM OF THE IRIS.

EDITORS OPHTHALMIC RECORD:

Dear Sirs—Dr. John E. Weeks has just called my attention to the use of the erroneous expression "anterior layer of epithelium and the condensed pigmented tissue," in the article on Exfoliation of the Anterior Layer of the Iris with Partial Opacity of the Lens. (OPHTHALMIC RECORD, Aug., 1900.)

In the older works the anterior layer of the iris is always called *epithelium*. The term *endothelium* is of comparatively recent origin. There is scarcely yet complete agreement as to what should be called by one name and what by the other. Foster's Medical Dictionary, in defining epithelium, says: "The term is restricted by some writers to the cellular coverings of the skin and mucous membranes, as distinguished from endothelium." Other dictionaries are even less definite.

Still the best recent usage has settled that the anterior layer of the iris should be called *endothelium*; and Dr. Weeks' criticism has more than a merely verbal importance. This structure arises from the mesoblast and not from the epiblast; and structures which differ so vastly in evolutionary history and significance ought to have names that will distinguish between them. The proper expression would be: "The anterior layer of *endothelium* and condensed pigmented tissue." The danger of carelessness in such a matter is illustrated in the next to last sentence of the article referred to. A suggestion that would be appropriate regarding an epiblastic structure, may not apply at all to a tissue arising from the mesoblast.

EDWARD JACKSON.

Lafayette, Ind.

EDITORS OPHTHALMIC RECORD:

Dear Sirs.—I think the following may be of importance to the profession, and I believe it is new. If a little bi-carbonate of soda be added to ordinary alcohol, instruments immersed in it will not oxidize. A knife left in this solution for five days still retains its keenness of point and edge when tried on a test drum. Your readers all know that ordinary commercial alcohol will tarnish bright steel in ten or fifteen minutes.

I notice in the March number of THE OPHTHALMIC RECORD that

Dr. Keiper announces his discovery that Dr. Wetherill, of this city, is using the ordinary jewelers' loupe or eyeglass for the examination of the eye. The use of this instrument by Dr. Wetherill or by your readers is not new. I have used it since the summer of 1886. I believe the majority of oculists use it and those who do not either are missing a useful appliance or are to be congratulated on their phenomenally good eye sight. My vision is fully up to the standard of perfection, but I would not attempt to do without the instrument. The small mirror of which Dr. Keiper speaks is absolutely original with him, but will not work. I do not know what he means by using it to detect a "foreign substance which cannot be seen." I personally never saw a foreign substance which I could not see. When I say that the instrument will not work I speak advisedly, although on the face of it the instrument seems fairly reasonable. The idea, of course, was suggested to the Doctor in part by direct examination of the eye with the ophthalmoscope. Now there is not a student in his second course in Medical College who does not know that in the direct examination of the eye the light is thrown into the eye by tilting the mirror or turning it to one side; that it cannot be held exactly parallel with the operator's face, because if so held the light from it would not strike upon the patient's eye nor enter the eye. This is simply a question of what every man in the profession knows. Now having placed this mirror suggested by Dr. Keiper over your eye you will find that it is held firmly and immovably in position, if it is held there at all. You cannot tilt it or alter its position without its falling off. Now if the jewelers' loupe is a good thing, and it absolutely is a good thing, how in the name of common sense can you use it and your mirror at the same time, because you certainly cannot combine them. The light cannot pass through this lens to the mirror and be reflected out again into the patient's eye. I am sorry that Dr. Keiper did not try his discovery, as if he had done so he would have seen its impossibility.

Here is something in the same line which I am surprised to see has escaped his notice. It is a valuable thing, namely: Such members of the profession, myself among them, as are engaged in nose and throat work in addition to eye work, have for the past ten or fifteen years used the large head mirror worn on the forehead in connection with the jewelers' loupe. The loupe is worn over the eye, and the mirror is held firmly in position on the forehead above the loupe,

the light being behind the patient. By tilting the mirror downward the light is thrown upon the patient's eye, and a brilliant illumination is obtained. I do not know who originated this method, but I have used it since 1886 and it did not originate with me. Dr. Keiper has probably forgotten how during the year of 1890 I removed a cinder from his own eye by the use of this method.

W. H. Peters, B. S., M. S., M. D.

Dr. McTavish, of Edinburgh, was something of a ventriloquist, and it befell that he wanted a lad to assist in surgery who must necessarily be of strong nerves. He received several applications, and when telling a lad what the duties were, in order to test his nerves, he would say, while pointing to a grinning skeleton standing upright in a corner: "Part of your work will be to feed the skeleton there, and while you are here you may as well have a try to do so." A few lads would consent to a trial, and received a basin of hot gruel and a spoon. While they were pouring the hot mass into the skull, the doctor would throw his voice so as to make it appear to proceed from the jaws of the bony customer, and gurgle out: "Gr-r-gr-h-gh! That's hot!" This was too much, and without exception the lads dropped the basin and bolted. The doctor began to despair of ever getting a suitable helpmate, until a small boy came and was given a basin and spoon. After the first spoonful the skeleton appeared to say: "Gr-r-ruh-r-hr! That's hot!" Shoveling in the scalding gruel as fast as ever, the boy rapped the skull and impatiently retorted: "Well, jist blew on't, ye auld bony!" The doctor sat down on his chair and fairly roared, but when the laugh was over he engaged the lad on the spot.

We have received the nineteenth annual report of the Baltimore Eye, Ear and Throat Charity Hospital. 4,653 patients were treated during the year 1900; of these 2,940 were eye cases, 960 throat cases, 753 ear cases. The attendance in the dispensary reached a total of 15,974 cases, 13,107 were in the eye and ear department, and 2,867 in the throat department. 468 surgical operations were performed, including 349 upon the eye, 75 upon the ear and 44 upon the throat and nose. 1,821 days' board was furnished free. This hospital has been open since 1882, during which time 48,674 patients have been treated, and 5,426 surgical operations have been performed. During this period the aggregate attendance in the dispensary has reached a total of 163,224. The hospital is in good financial condition.

REVIEWS.

THE VALUE OF IRIDECTOMY IN GLAUCOMA.

Dr. L. de Wecker's (*Abstract from the Archives d'Ophtalmologic,* May, 1901,)) report is divided into four portions. The first two deal with the historical evolution of the surgical treatment of glaucoma and the diverse methods which have been proposed as substitutes for the classical treatment, that is for iridectomy.

After discussing Hancock's operation and the various forms of sclerotomy, he states that the indications for *anterior sclerotomy* are the following: (1) infantile glaucoma; (2) absolute glaucoma, that is glaucomatous degeneration, a state in which the almost complete atrophy of the iris renders an excision of a portion of the iris practically impossible; (3) prodromal glaucoma when it is not possible to dissipate the symptoms of nebulous and iridescent vision, that is to say, the rainbow appearance around artificial lights; (4) as a means of diagnosis in doubtful cases of chronic simple glaucoma with very slight increase in the tension; (5) as a support to iridectomy when the first operation is insufficient, or when its curative effect is exhausted; (6) as an auxiliary to iridectomy, which in his opinion, is its most important indication.

The principal indications of *posterior sclerotomy* are to quiet the pains of absolute glaucoma and to prepare an eye for the operation of iridectomy. The effect is often surprising and puts the eye in a favorable condition for an iridectomy or an anterior sclerotomy. The anterior chamber is reestablished in part and the eye, after massage, assumes a normal or even subnormal tension.

The author then passes in review certain extraocular operations and refers to Badal's stretching of the external nasal nerve as an interesting operation because it is the first one in which a nerve was attacked which was thought to be correlated with the ocular innervention.

The question of sympathectomy, or excision of the superior ganglion of the sympathetic is discussed, and de Wecker comes to the following conclusions:

1. Sympathectomy should not be substituted for the ocular operations on simple glaucoma, which disease some surgeons wrongly declare is improperly treated by direct intervention.

2. Resection of the sympathetic ought to be exclusively reserved

for exceptional cases, which are designated by the name of malignant glaucoma.

3. It is not possible to count upon a certain or durable action from this operation.

4. Failure on the part of sympathectomy does not improve the chances of the eye for direct intervention; on the contrary, it seems to render them more perilous.

In the third portion of his report de Wecker discusses the tendency at this time to divert from surgical treatment certain forms of glaucoma and to reserve them for medical treatment. He attributes this first of all to the employment of myotics. Laquer's discovery of the value of eserine in the treatment of glaucoma and the great good that it has done are freely acknowledged, but it is pointed out that eserine has been the means of depriving a good many glaucoma patients of a therapeutic measure which might have cured them. He points out that it was among the fundamental rules established by von Græfe that the effect of operation was all the more certain and undeniable when the operation was performed at a time approaching the onset of the malady. He refers to the striking contrast between the advice of von Græfe to patients attacked with chronic simple glaucoma, of whom he cured fully one-half by iridectomy, and the position assumed by a number of surgeons who maintain that chronic simple glaucoma is not cured by iridectomy or sclerotomy and for this class of cases use myotics and general treatment in place of surgical intervention, or when these fail, wish to substitute sympathectomy for iridectomy. According to de Wecker, the reason for this great divergence of opinion is to be found in the unreasonable delay in intervention. The excuse which these surgeons present for their inactivity is to declare that the absence of the curative effect of iridectomy demonstrates that it is necessary to exclude from glaucoma those forms of the disease deprived of all irritative symptoms, thus committing again an error which von Græfe had been careful to point out. According to de Wecker the following valuable reasons plead against the exclusion of non-irritative and chronic forms from the classification of glaucoma.

(1) The transformation, often tardy, it is true, of the simple form of glaucoma into the irritative or inflammatory type.

(2) The fact that among patients attacked in one eye with acute glaucoma or chronic inflammatory glaucoma, the fellow eye may present a form of glaucoma absolutely deprived of inflammatory symptoms.

(3) The fact that one may meet, particularly in Israelitic families, several members, brothers and sisters, with glaucoma, and that on the one hand the manifestation may be an inflammatory glaucoma with acute symptoms, and on the other a chronic simple glaucoma.

(4) The experimental observation, furnished by sympathectomy, that some cases of chronic simple glaucoma tend to transform themselves into acute or inflammatory glaucoma.

(5) The fact that chronic simple glaucoma may be as surely and as definitely cured as if the patients had been attacked by an acute or chronic inflammatory glaucoma.

de Wecker does not desire that eserine shall be abandoned, but it ought to be reserved for cases in which, in spite of a glaucomatous excavation and an augmented tension, the vision remains perfect and the field of vision intact. But the least contraction of the visual field, even if the visual acuity has not been affected, ought to be the signal for intervention. The same is true if several glaucomatous attacks manifest themselves when there is a suspension of the myotics. He also thinks that treatment directed to the general health, particularly against rheumatism, gout or syphilis, has the disadvantage of retarding surgical intervention. After iridectomy or sclerotomy has been performed these general treatments are of value.

de Wecker now comes to the final portion of his report, which deals with the value of iridectomy for the cure of glaucoma in general and of its future. After pointing out that a good many errors have been made in including with acute glaucoma certain cases of chronic irritative glaucoma, he states that, without doubt, iridectomy in the acute cases, in spite of brilliant success, sometimes gives rise to disappointments, but they are exceptional. The operation more frequently conserves vision to the end of the patient's life.

Coming to the type which is known as chronic inflammatory glaucoma, he thinks, that in order to acquire a precise notion of the curative action of iridectomy in each variety of this disease, it is necessary to distinguish in a most precise manner the limits which separate each form, and no longer to classify with acute glaucoma the chronic irritative form with acute but intermittent exacerbations. The measurement of the field of vision, the estimation of the visual acuity, and the examination of the surface of the nerve-head give to the latter affection the special symptoms which distinguish it from the first, that is, from the acute form. On the other hand, it is

necessary to include in the class chronic inflammatory glaucoma all cases where there exists the least corneal trouble which reveals itself to the patients by the appearance of smoke or mist before the eyes and iridescent vision, that is, the rainbow appearance around artificial lights. The prognosis of chronic irritative glaucoma will be more favorable the more nearly the disease approaches acute glaucoma. It is a totally different matter when one deals with a chronic irritative glaucoma with slightly accentuated exacerbations, or when the irritative symptoms persist for a long period of time, but never permit the cornea to become entirely clear and render opthalmoscopic examination difficult. Under these circumstances iridectomy and sclerotomy may lose their brilliant action, and their inefficiency, immediate or mediate, makes its appearance much more frequently when the operation is performed at a period far removed from the beginning of the disease, which has had time notably to impair the visual field, to excavate the papilla and to render it anaemic. Under these circumstances the surgeon is apt to make the acquaintance of malignant cases. But the most troublesome cases of chronic inflammatory glaucoma are those which, possessed of only moderate irritative symptoms, simulate chronic simple glaucoma, and therefore do not receive prompt surgical treatment.

He reaches now the discussion of chronic simple glaucoma, and points out that it is necessary exactly to distinguish between a true chronic simple glaucoma and a morbid affection of the optic nerve with preexisting physiological excavation. The pathognomonic sign which differentiates the two affections is the increase of intraocular tension. Without an increase of such tension glaucoma does not exist. We will never be able satisfactorily to trace a demarcation between the idiopathic affections of the optic nerve with a large excavation if we admit a chronic simple glaucoma without increase of intraocular tension, an admission, however, which would overturn the entire pathogenesis of glaucoma. It is from the first absolutely indispensable clearly to eliminate fram glaucoma that affection which has been designated a nonirritative variety of glaucoma without exaggeration of intraocular tension. It is necessary, and this is the principal end of the report, to demonstrate to everybody that that affection which is in reality chronic simple glaucoma, is, if attacked early, as susceptible of operative cure as the acute forms, and that the cure may also be a durable one. *The point which de Wecker desires to make is the perfect curability of chronic simple glaucoma by iridectomy, sclerot-*

omy, and especially by a combination of these two operations. To this end he turns to the statistics which he has gathered by a personal inquiry among many confreeres, and proceeds to their analysis. One point which stands out sharply is the small number of confreres who are opposed to a surgical intervention in chronic simple glaucoma. The explanation of this statement will be furnished by the fact that they have not operated on cases without increase of intraocular tension. They operate only when the tension is accentuated and when congestion signs appear, that is to say, rainbow vision and visual obscurations. But this is not sufficient. In true chronic simple glaucoma one never deals with very marked exacerbations of visual troubles and increase of intraocular tension, and the latter may be so slightly manifested that the most expert fingers hesitate to detect an exaggeration of tension. He classifies with simple glaucoma cases with slight increase of tension (and they are, according to his experience, the exception in true simple glaucoma), because he does not trust only to the sense of touch. The manner in which the visual field acts, both toward white and especially toward colors aids in the decision. Cases with very slight increase of tension are apt to be submitted to the treatment of myotics exclusively because "the abstentionists do not grant an augmentation of tension as a sufficient sign to classify them with glaucoma, or because they wish to admit that there may be a glaucoma without increase of tension. To make the abstentionists admit and confess their error it will then be necessary first of all to make them abandon the idea of a glaucoma without augmentation of tension, and in the second place, to persuade them that it is no longer possible to determine the character of the disease by the sense of touch alone, but to exact, before one declares the patient to be attacked by a pseudo or false glaucoma without manifestation of tension and not operable, a profound functional examination. The separation of true simple glaucoma and pseudo or false glaucoma ought then to be rigorously established, and it is to be hoped that following this plan we will be able to separate the two maladies by an exact series of symptoms.

The exclusion from the catalogue of simple glaucoma of all cases presenting the least congestive signs should be required, even if they appear only in a very slight and transitory punctated condition of the cornea, with slight and fugacious obscurations of vision and the least rainbow apparitions. The character of simple glaucoma depends upon its freedom from all irritative symptoms. If we have a proper

understanding of this disease the cures by operation will have a percentage at least equal to those obtained in the congestive form.

The lack of success attained in the simple form of glaucoma depends upon the slow and insidious march of the affection, which engages both the attention of the patient and of the doctor and causes them to temporize. It is known that if one delays intervention and treats the case with myotics until the limits of the visual field approach the points of fixation, iridectomy executed without the help of sclerotomy may cause a very notable declination of vision, and it is precisely these cases which our dissatisfied confreres have principally operated upon. Patients come late enough for the first eye attacks; if they present themselves even with a feeble or slight reduction of the visual field, then the operation must be done. On the contrary, if a perfect integrity of central and peripheral vision exists, it is the custom to prescribe myotics, and once abandoned to themselves the patients no longer show themselves until a notable break in the visual field menacing the point of fixation has appeared. Under such conditions iridectomy, not preceded by sclerotomy, may have disastrous results.

This leads him naturally enough to ask this quetsion: Can not one in advance discern the cases of glaucoma where really disastrous results will show themselves after operation assuming the character of malignant glaucoma? That which de Wecker's long experience has taught him is that one does not encounter these cases either in the acute form or in the true chronic simple form. Neither does one observe them in chronic congestive glaucoma with such symptoms which a number of our confreres classify with acute glaucoma, and that above all, if after the attacks the anterior chamber regains a certain amount of its depth. One observes malignant glaucoma especially in cases of chronic congestive glaucoma with very slight manifestations, but where in the beginning the anterior chamber is greatly reduced and never varies in depth during the intervals of the feeble exacerbations.

To guarantee against meeting cases so depressing and discouraging to the operator, de Wecker has proposed never to practise an iridectomy without preceding it with a sclerotomy, above all, when one has reason to suspect a malignant form. This leads him to speak of sclerotomy as an aid and an auxiliary to iridectomy. He believes that he is justified in enunciating the following axiom:

The curative action of anti-glaucomatous operations executed

upon an eye is dependent upon the exaggeration of the intraocular tension of the eye to be operated upon. This action is nullified when there is no morbid augmentation of tension, and when the cicatrization of the pericorneal and scleral wounds takes place under normal conditions of intraocular tension. He believes that he can increase the therapeutic action by associating iridectomy with sclerotomy, the latter of which he has from the first practised. Without insisting upon the happy influence of sclerotomy for facilitating an exact execution of iridectomy de Wecker adds that the sclerotomy can replace the second iridectomy which von Græfe made when the first was demonstrated to be insufficient. G. E. de S.

TRAINING OF SIGHT.

Lord Wolseley having lately remarked upon the good sight of the Boers as one cause at least of their good shooting, and having ascribed this good sight to its constant exercise in the open air, Mr. Brundenell Carter has pointed out that it is not merely a question of open air, but of the training of the sight upon things that are far off and difficult to see. The defective vision possessed by so many children who have been brought up in towns is not caused by errors of refraction alone, common as they are, but an actual deficiency in acuteness of vision, a lack of development in the nervous structures involved in the act of seeing. "Vision," he says, "like every other nerve function, must be cultivated for the attainment of a high degree of excellence.

"The visual power of London children is not cultivated by their environment. They see the other side of the street in which they live, and the carts and omnibuses of the thoroughfares. They scarcely ever have the visual attention directed strongly to any object which it is difficult to see or which subtends a visual angle approaching the limits of visibility; and hence the seeing function is never exerted to anything like what should be the extent of its powers. With a country child the case is widely different." Mr. Carter would like to see a place given to excellence of vision among the various physical qualifications which are habitually tested by competition, and for which prizes are awarded, and he urges the desirability of volunteers taking up exercise and training of sight. "It is at least certain that our riflemen would not shoot worse for having learned to see better."—*Hospital.*

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR. FRANK ALLPORT, 92 STATE ST, CHICAGO.

The following program was carried out in the section on ophthalmology at the recent meeting of the British Medical Association:

1. *The diagnosis, prognosis and treatment (non-operative) of progressive Myopia.* Opened by Mr. Priestley Smith, F. R. C. S.
2. *The relation of gonorrhoea to diseases of the eye (exclusive of purulent ophthalmia,)* opened by Mr. J. B. Lawford, F. R. C. S.
3. *The varieties and treatment of after-cataract.* Opened by Mr. Richardson Cross, F. R. C. S.

The following took part in the discussions: Dr. Landolt (Paris) Professor Nordensen, Mr. Henry Power, Mr. Quarry Silcock, Mr. D. Little, Mr. T, H. Bickerton, Mr. Simeon Snell, Mr. C. E. Shaw, Mr. Hugh Thompson, Mr. Kenneth Campbell, Mr. Reginald Feld, Miss Ellaby, Mr. Karl Grossmann, Mr. John Hern, Mr. R. S. Hamilton, Mr. A. S. Percival and Mr. Doyne.

The following papers were read:

(1) *An unusual form of keratitis associated with a general skin eruption, with drawing.* (2) *A new portable refractometer,* by Charles Blair, F. R. C. S.

The latest therapeutical discoveries in ophthalmology—Acoine, Dionine, Epinepheim, etc., by A. Darier, M. D., Paris.

The essentials of a test for color blindness, by F. W. Eldridge Green, F. R. C. S.

The diagnostic value of certain forms of retinal hemorrhage with cases and drawings, by Charlotte Ellaby, M. D.

Further observations on sympathetic nerve degenerations, by Freeland Fergus, M. D.

Ivory Exostosis of Orbit, observed for over sixteen years, and operated on in 1886, 1892, 1895, 1898, by Karl Grossmann, M. D.

Hypopyon Ulcers of the Cornea, by Robert J. Hamilton, F. R. C. S., Edin.

(1) *Treatment of Hypopyon Ulcers of the Cornea,* (2) *Preliminary Note on a Form of Superficial Keratitis with a Special Microorganism, With microscopic Slides,* by H. Herbert, F. R. C. S., Major T. M. S.

The Results of Peritomy in Cases of Keratitis and Episcleritis, by John Hern, M. D., F. R. C. S., Ed.

Periscopic Glasses. A. S. Percival, M. B.

Treatment of Ulcers with Hypopyon, by Richard Williams, M. R. C. S.

A lady desires to do refraction work in an oculist's office. Her recommendations are of the best. Salary ten dollars a week. Any one desiring information in this matter may address the News Editor.

The Ophthalmoscopic Diagnosis of Bright's Disease.—Dr. Dudley S. Reynolds, Louisville, said this is something of great importance, but requires expert judgment and can never be made until the renal disease has reached a dangerous stage. Failing vision is the first symptom, and leads the patient to seek relief. Few persons with retinitis albuminuria live beyond twelve months from the beginning of the affection. Fatty deposits in the retina, presenting a series of radiatory striations around the macula, with some deposits in other parts of the retina and occasional disseminated hemorrhagic effusions with tortuous retinal arteries are never seen without coexisting renal disease.

Dr. Tuckerman, of Cleveland, and Dr. Risley, of Philadelphia, referred to cases in which grievous damage had been done through failure of the patients to be referred to an oculist rather than to the advertising optician.

Eye Injuries from Lime.—H. Schmidt-Rimpler analyzes fifty-six cases seen during the last ten years. The immediate procedure in these cases should be the careful removal of all particles of lime from the cornea and pupil. This is best done with a piece of clean linen dipped in oil, or, if no oil is at hand, with a piece of linen alone. The accidental abrasion of the epithelium is of less danger than the continuance in the eye of the offending body. Next the eye should be thoroughly syringed with some bland oil, care being taken that the oil penetrates thoroughly under the upper lid and in the conjunctival sac of the lower. The writer advocates the use of spectacles by those whose occupation render them liable to this class of injuries.—Berliner Klinische Wochenschrift.

The Relation of Diseases of the Eye to those of the Teeth.—N. Weill states that this phase of medicine and dentistry belongs to the newer time. Pathological conditions of the eye or orbit can cause dental disturbances, and vice versa, either reflexly or by continuity, those of the latter group being less frequent but graver. Very seri-

ous may be the results of abscesses of the orbit, which many be primary or secondary in origin. When of dental origin they may arise in one or two ways: either via the periosteum of the superior maxillary bone and the orbit, or via the antrum of Highmore. Timely operation is demanded. The writer is unable to find any case recorded in which an ocular or orbital affection involved the teeth by continuity. The reflex currents can originate in the eye and manifest themselves by pain in the teeth, but the reverse neurosis, i. e., the teeth the cause of the eye disturbance, and probably more frequent. The writer cites numerous cases in illustration of this subject.—*Pennsylvania Medical Journal.*

Dr. W. F. Weymann, of St. Joseph, Mo., has been elected president of the Central Medical College of St. Joseph, Mo.

Dr. John F. Fulton, of St. Paul, was elected one of the trustees of the Journal of the American Medical Association.

Dr. Frank Allport, of Chicago, sailed for Europe the latter part of July and spent the month of August in Switzerland.

Dr. George A. Fleming has been appointed demonstrator of ophthalmology at the University of Maryland, Baltimore.

Under the auspices of the Chicago Medical Society a banquet and celebration has been organized in honor of Dr. Nathan Smith Davis, M. D., L.L. D., who is the oldest living president of the Society and widely known and honored among the profession by his long connection with the American Medical and other associations. The banquet will take place at the Auditorium Hotel, Chicago, Saturday evening, October 5, 1901. The committee who have charge are: Christian Fenger, F. X Walls, Jas. H. Stowell, E. F. Wells, W. S. Haines and Arthur R. Edwards, committee.

Entertainment to Help the Blind.—An interesting program was recently arranged in Chicago to be given in Drill Hall of the Masonic Temple by the Social and Mutual Advancement Association of the Blind. This association is a little more than a year old, but this is its first public entertainment.

The life of Francis Parkman, described by Farnham (1900), is a similar case. The loss of sight unfolded also his unconquerable ambition. But as his death is of a comparatively recent date, and some of the readers of the Annals must have known him, it would be of interest if we could get some ophthalmological information about Parkham.

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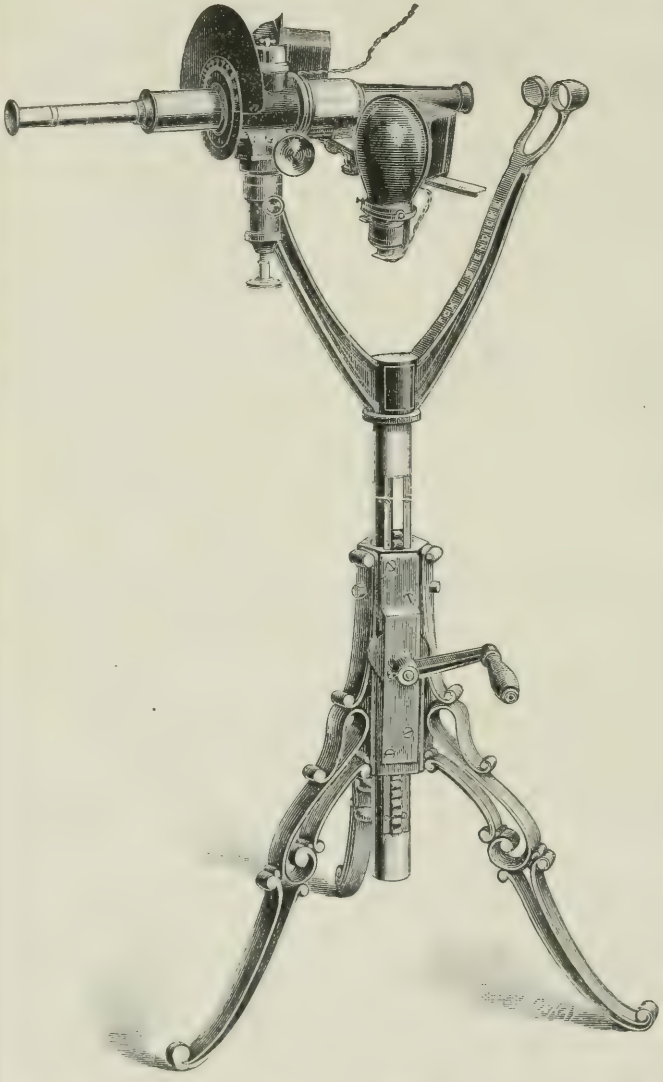

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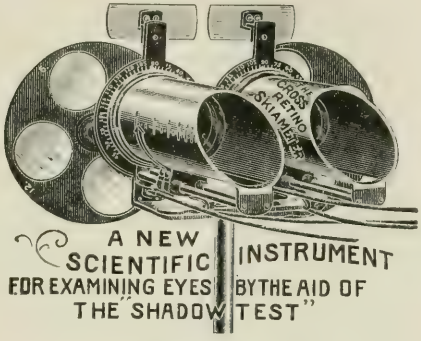

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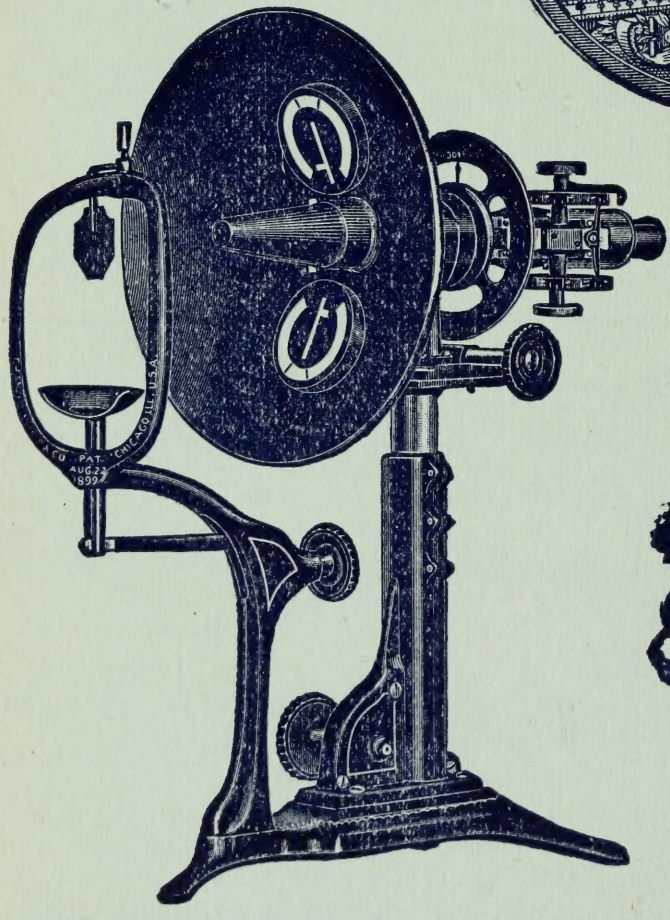

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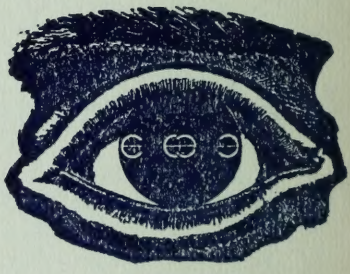

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